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GAS LIGHT JOURNAL

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BRIEFLY TOLD.

THE GAS COMPANY'S OFFICE.—Many topics of interest to the engineers, executive officers and clerical staffs of gas companies, were discussed in a clear, practical manner by President McMillin, in his address (which is given in full elsewhere in this issue of the JOURNAL) to the American Gas Light Association, and the President put things so forcibly that it would indeed be difficult to misinterpret their teachings. While the JOURNAL seldom departs from its time-observed policy of not interfering in any way with the office management of companies, we think that in this instance a word or two respecting some of the possibilities for offence named by President McMillin as likely to spring from the inattention of the office force, will not be out of place. There can be no doubt that the problem of how to popularize gas lighting is as live a question to-day as it was 10 years ago: neither can there be any doubt that it is a problem which will require close study while the art of gas lighting is practiced—and it seems as though the "art" will remain an important one for many years to come, if present indications are to be accepted as the finger posts to futurity. We fear that the consumer will always look upon the gas meter with distrust, since it is the case with that useful and accurate instrument that it has been tagged "bad dog" in the past. Strange it is, too, that he will not hearken to the teachings of a vast array of figures, made by his own appointed official meter inspectors, which in the concrete show that the company always has the slow end of the registration. Further, in nearly every instance of the official reports on record respecting these tests it is shown that one or more meters have been brought to light that did not register at all, and as the "slow percentage" of the instruments that failed to register cannot be amalgamated with the totals of the "fast percentages," the case as it stands against the companies is never really revealed. The consumer who owns a watch will always stretch a point in the telling of its virtues as a reliable reckoner of time, when comparing his timepiece with that of a friend; but how he would secretly gloat over his possession if that watch could be counted on to keep on its face within 3 per cent. of the actual time! Well, that nevertheless is what the average percentage of error in the gas meter is—only that the average, from the figures respecting over 50,000 gas meters that have been officially tested in this country at divers times, is against the companies. Passing on from the meter to the office force, here is where the consumer often has just cause for complaint, and President McMillin puts down the occasions very plainly. We, too, have observed instances were some incipiently whiskered clerk, either through simple inattention or deliberate incivility, has brought upon the corporation that puts the bread in his mouth the contempt or anger of a patron, the securing of whose good will or indifference could be had by common attention or even brusque business method. Thus it is that the skill of the company's engineer, whose careful methods at the works have resulted in the production of a good illuminating article, and whose care of the street department has carried that article in sufficient and steady volume to the consumer's burners, is in a measure, at least, negatived. Youth, and particularly the city youth whose whiskers are about beginning to be a source of care to him, can, when located behind the railings of a gas company's office, make himself a most obnoxious object to the consumer, who either

comes to the company's office as a self-appointed *carrier of the company's money*, or else to utter complaint that may or may not have foundation in justice. And the case of the youth's incivility or inattention is always more profound if "my father has an interest in the Company." This failing of the office clerks is all the less understandable to the engineer, who, as a rule, has a much harder class to contend with in the people that lay siege to him at the works' office. Will not every engineer in the land recognize the inventor crank, who has the knack of turning up with his blue prints and specifications at most inopportune times, who has cost him many valuable minutes, or even half hours; and can any one cite an instance when the crank has been treated with incivility. Nor does the engineer alone have to contend with inventor cranks. There is the jolly and affable drummer—to tell the truth, the latter is often warmly welcome—the works employee with a grievance, and so on. But they are all treated with civility and usually with fairness. The moral that adorns the tale is that were the practice of the works office duplicated at the main office there would be far fewer disgruntled consumers, and the company would be in pleasanter community with its customers. Many a clever suggestion lies within the lines of President McMillin's address in his handling of this theme, and we hope that many small reforms will be the result of his hints. Amenity costs nothing; activity repays itself; and temper-curbing leads to a better enjoyment of life.

THE TARIFF CHANGES.—In response to several inquiries we present the following respecting the changes in the tariff laws on materials in which gas makers have an interest:

Material.	New Rate.	Old Rate.
All coal tar colors or dyes	35 per ct. ad. val.	35 per ct.
All preparations of coal tar or dyes	20 "	20 "
Ammonia, carbonate, per lb.	1¼ cents	20 "
" muriate of, "	¾ "	10 "
" sulphate of, "	¼ "	20 "
Firebrick, not glazed or decorated, per ton	$1.25	20 "
Firebrick, glazed, decorated, etc.	45 per ct. ad. val.	20 "
Roman, Portland, and other hydraulic cement, per 100 lbs.	8 cents	20 "
Other cement	20 per ct. ad. val.	20 "
Clays or earths, unwrought, per ton	$1.50	$1.50
Clays or earths, wrought, per ton	3.00	3.00
Boiler or other tubes, per lb.	2½ cents	3 "
Tubes	2¼ "	0
Cast iron pipe, every description, per lb	9/16 "	1 cent.
Coal, bituminous and shale, per ton of 28 bush., 80 lbs. to bushel	75 "	75 cents.
Coal, slack or culm, such as will pass through a ½-inch screen, per ton of 28 bush., 80 lbs. to bushel	30 "	30 "
Coke, ad. val	20 per cent.	0

Alizarine, natural or artificial, and dyes commercially known as alizarine yellow, alizarine orange, alizarine green, blue, brown, black, are placed on the free list; as also is aniline salt. Anthracite coal is to be admitted free, and the former duty on crude coal tar (20 per cent.) is removed. Paraffine is also on the free list.

NOTES.—Mr. H. S. Jackson, of the firm of Jackson & Co., promoters and builders of gas works, of Boston, Mass., has been granted a franchise for the erection of a gas plant at Palmer, Mass. Fuel gas, under the Loomis system, will be introduced by Mr. Jackson and his associates, who will at once organize a Company to be known as the Palmer Gas Light and Fuel Company. Mr. Jackson, who is now engaged in constructing the works at South Framingham, Mass., says that gas will be turned on at that point by December 1st.——Andrew Simonds, Chairman of the Lighting Committee, Charleston, S. C., on last Saturday, opened bids for lighting the city and public institutions for a term commencing January 1st, 1891, and ending April 1st, 1892. We are not advised as to the figures submitted.——Certain dissatisfied shareholders in the Hyde Park Mutual Fuel Gas Company, of Chicago, having announced their intention of putting their shares on the market, caused those holding a majority of the stock to vest its voting powers in a committee of three trustees. What is the matter with the latest fuel gas venture?——The Township Committee, of Summit, N. J., has decided to award the contract for the public lighting of the place to a local branch of the Westinghouse Company. The agreement is to supply a certain number of 16-candle power incandescent electric lamps, to burn each night and all night, at the rate of $17.75 per lamp. This likely ends the project for the establishment of a gas works at Summit.

[OFFICIAL REPORT—REVISED BY THE SECRETARY.]

EIGHTEENTH ANNUAL MEETING OF THE AMERICAN GAS LIGHT ASSOCIATION.

HELD AT SAVANNAH, GA., OCTOBER 15, 16 AND 17, 1890.

FIRST DAY—MORNING SESSION.

The eighteenth annual meeting of the American Gas Light Association was called to order, in the De Soto House, Savannah, Ga., on the morning of Wednesday, October 15, by the President, Mr. Emerson McMillin, of St. Louis, Mo. The Secretary, Mr. C. J. R. Humphreys, occupied the recorder's desk.

WELCOMED BY THE MUNICIPALITY.

Mr. David Douglas, President of the Mutual Gas Light Company, of Savannah, stated that the Mayor, Aldermen and others of the city officials were in waiting for the purpose of welcoming the Association to the city. Thereupon, Mayor Swarz, Aldermen Bailey, Parson, Myers, Reid, Nichols and Falligant, Clerk of the Council, Rebarer, City Marshall Wade, and the Hons. Robert Falligant and A. P Adams entered the room and were introduced by the President.

Mayor Swarz—As the Mayor of Savannah I have come to tender you the freedom of the city, and I will call upon the Hon. A. P. Adams to address you in my behalf.

Hon. A. P. Adams—My friends, for so I would address you—let it be understood at once that you are our guests and are our friends—and that I do not feel that I speak to strangers—hence I shall not speak in purely conventional phrase, nor in the formal language of cold and distant courtesy; but, in behalf of this municipality that I am permitted in part to represent, and in behalf of the citizens of Savannah, I greet you. I salute you with the greetings of affection, and to every member, friend and attendant upon this Association I extend a hearty and a heart-felt welcome. (Applause.) We know, sir, the high character of your Association, and the worth and distinction of its representatives as they come to us from every section of our beloved Union (Applause), and from the great Dominion which is our near, and our very dear, neighbor. (Applause.) We feel honored by this presence; and you have aggrandized this honor, if you will permit me to say so, by the presence of so many brilliant, accomplished and graceful women, who shall be the fair, fond and special guests of the occasion. (Applause) This Forest City of ours is beautiful to our eyes. Her sentiments and her traditions are dear to our hearts. We trust that here you will find that which will entertain and interest you, and will render all the incidents and reminiscences of this visit memorable and enjoyable. And, above all, do we fervently hope that in the social intercourse and amenities that will follow there will be laid foundations of mutual sympathy and regard, and of mutual friendships, to be augmented by time to form an enduring contribution to the joy and the happiness with which may ever your lives be fraught. We beg you to remember that while you are here you are at home. This city is yours. Our homes are yours. Our hearts are yours. Come, enter, and take possession. (Applause.)

President McMillin—All those who would return to the Mayor, to the speaker, and to the Board of Aldermen their very sincere thanks for this reception, and extend to them the courtesies of the Association, and seats in this convention, will please rise to their feet. (All rose.) Mr. Mayor and gentlemen, we shall be pleased to have you take seats with us at your convenience. The American Gas Light Association will now come to order for the transaction of business.

ROUTINE BUSINESS.

Under our rules the first business in order is the reading of the minutes of the last meeting.

On motion of Mr. Boardman, the reading was dispensed with.

APPLICATIONS FOR MEMBERSHIP.

The President—The report of the Council upon the applications and transfers of membership is next in order.

The Secretary read the following report:

SAVANNAH, GA., Oct. 15, 1890.

To the Members of the American Gas Light Association—Gentlemen: The Council having approved of the following applications for membership, respectfully submit them to the Association for action.

ACTIVE MEMBERS.

W. R. Addicks, Engineer Bay State Gas Company, Boston, Mass.; F. P. Addicks, Treas., Boston Gas Light Company and Bay State Gas Company, Boston, Mass.; J. F. Aldrich, Gen'l Manager Mutual Fuel Gas Company, Chicago, Ills.; J. Buckman, Manager, Bristol Gas Light Company, Philadelphia, Pa.; C. D. Blauvelt, Sec'y and Supt., Gas and Elec-

ric Light Company, St. Augustine, Fla.; C. R. Collins, Engineer Titusville Gas Company, Philadelphia, Pa.; J. A. P. Crisfield, Assist. Supt. and Sec'y, Mutual Gas Light Company, Savannah, Ga.; Robt. M. Dixon, Engineer Safety Car Heating and Light Company, also Engineer Pintsch Gas Compressing Company, New York, N. Y.; J. M. Daniels, Supt. and Agent, Columbia Gas Light Company, Columbia, S. C.; R. F. Fitz, Supt. Elgin American Gas Company, Elgin, Ills.; W. S. Humes, Sec'y Gas Company, Altoona, Pa.; C. S. Hammatt, Supt. Citizens Gas and Electric Company, and Jacksonville Electric Light Company, Jacksonville, Fla.; J. T. Herron, Supt. Citizens Gas Company, Buffalo, N. Y.; L. L. Kellogg, Supt. Gas Lt. Company, Sioux City, Ia.; Wm. B. Miller, Supt. Cartersville Improvement, Gas and Water Company, Cartersville, Ga.; Henry Mactier, Chief Engineer Metropolitan Gas Light Company, Elizabeth, N. J.; Benj. F. Macdonald, Sec'y and Treas., Consumers Gas Company, Newburg, N. Y.; Jas. S. McIlhenny, Assist. Supt. Gas Light Company, Washington, D. C.; F. McKiege, Sec'y Standard Gas Light Company, New York, N. Y.; E. R. Phelps, Treas., Citizens Gas and Electric Company, White Plains, N. Y.; Thos. Ringwood, Prest. Ilion and Mohawk Gas Light Company, Illion, N. Y.; J. J. Russell, Supt. National Gas Company, Sheboygan, Wis.; W. L. Williams, Supt. U. G. I. Company, and Peoples works, Paterson, N. J.; J. W. Wilcox, Supt. Macon Gas Light and Water Company, Macon, Ga.; C. F. Zeek, Supt. Gas Company, Pensacola, Fla.; J. W. Gwynn, Supt. Gas Light and Fuel Company, Bucyrus, O.; Wm. J. Winegar, Prest. Gas Light and Fuel Company, Palatka, Fla.; Chas. J. Hayes, Supt. Gas Light and Fuel Company, Palatka, Fla.; Wm. S. Bowen, Assist, Supt. Gas Company, West Chester, Pa.; R. M. Searle, Gen'l Foreman, 44th street station, Consolidated Gas Company, New York, N. Y.; T. H. De Saussure, Supt Gas works State Lunatic Asylum, Milledgeville, Ga.; John Gimper, Manager Gas Company, Leavenworth, Kansas.

Associate Members.

Jerome Croul, Vice-Pres., Gas Light Company, Detroit, Mich.; W. S. Essick, Sec. Jones Meter and Stove Company, Royersford, Pa.; S. F. Hayward, with Connelly & Co., Mfrs. Gas Apparatus, New York, N. Y.; Andrew Harris, of Harris Bros. & Co., Philadelphia, Pa.; C. S. Knight, Fort Wayne, Ind.; E. M. Russell, Agt. Parker Russell Mining and Mfg. Company, St. Louis, Mo.; H. M. Hubbard, Sec., George M. Clarke Gas Stove Company, Chicago, Ills.

Election of New Members.

On motion of Mr. Littlehales, the Secretary was empowered to cast the ballot of the Association for the election of the gentlemen named as members of the Association. That duty having been performed, the gentlemen were introduced to the Association by the President.

In making the introduction, the President said—I trust the gentlemen who have just been elected to membership will feel that they have as much right in the Association as the very oldest member, and will feel it not only their privilege, but their duty, to take a very active part in the proceedings of the meeting.

The Secretary then read the following

Report of Council.

Savannah, Ga., Oct. 15, 1890.

To the Members of the Association—Gentlemen: Your Council would respectfully offer the following report on the work of the Association for the past year:

The Council have approved the following papers to be read during the meeting—

"The Mismanagement of Gas Works," by E. G. Cowdery.

"The Extension of the Use of Gas for Purposes Other than Illumination," by E. G. Pratt.

"Gas Coals of the United States," by H. C. Adams.

"The Practical Efficiency of an Illuminating Water Gas Setting," by A. G. Glasgow.

"Inclined Retorts," by Frederic Egner.

"The Gas Engineer and His Pencil," by F. H. Shelton.

"Purification of Gas," by A. E. Forstall.

"Pintsch System," by R. M. Dixon.

"Hints on Electric Lighting by Small Gas Companies," by A. E. Boardman.

The Council have appointed the following gentlemen to serve as the Committee on Nominations, namely:

Thomas Turner, Chairman, Charleston, S. C.; A. B. Slater, Jr., Providence, R. I.; A. W. Littleton, Quincy, Ills.; J. F. Scriver, Montreal, Canada; W. K. Parks, Philadelphia, Pa.

The Council recommend that the Secretary proceed with the publication of Volume No. 9 of the proceedings, sending one copy to each member.

The Council recommend that the Secretary be instructed to furnish each of the Gas Journals with a copy of the proceedings of this meeting, with the understanding that each paper pays its share of the entire expense of reporting the proceedings.

The Council recommend that as a matter of economy the practice of printing copies of the President's Address be discontinued.

For the same reason the Council recommend that the custom of printing the papers in advance be discontinued.

The Finance Committee have examined the books of the Treasurer as per report attached. Respectfully submitted,

Emerson McMillin, Prest.

Report of Finance Committee.

To the Council:—Your Finance Committee have examined the books and vouchers of the Secretary and Treasurer, C. J. R. Humphreys, for the year ending Sept. 30, 1890, and find the same to be correct.

C. W. Blodget, A. E. Boardman, } Finance Committee.

Mr. Littlehales moved the adoption of the report.

The President—There are some recommendations here that it will be well for us to consider. If those who have hitherto favored the printing of the papers in pamphlet form, in advance of the meeting, knew the condition of the treasury they would hardly object to a discontinuance of the practice. It is almost a matter of necessity; for since we made the large expenditure a year or two ago for procuring badges for the members of the Association our treasury has been practically empty. We started a number of little economies last night at our meeting, and hope that we will, after a while, get back to where we can again take up the publication of the papers in advance. But when we again do that I hope the publication will be made two or three weeks in advance of the meeting. Finding the papers at the meeting affords no particular advantage to the Association.

The report of Council was adopted.

Reports of Secretary and Treasurer.

The Secretary read the following reports:

Report of the Secretary and Treasurer for Year ending Sept. 30, 1890.

Receipts.

Dues for year 1887	$25 00	
" " 1888	40 00	
" " 1889	170 00	
" " 1890	1,010 00	
" " 1891	755 00	
Initiation fees	360 00	
Account of stenographic report of Toronto meeting	96 83	
Copy of Proceedings, Baltimore meeting	24 75	
Badge	4 00	
Extra copies, Shelton's paper	38 00	
	$2,523 58	
Amount brought forward from last year	199 76	
		$2,723 34

Expenditures.

Expenses, Baltimore meeting	$254 54	
Salary, Secretary and Treasurer	600 00	
Printing and stationery	439 44	
Stamped envelopes, stamps, and sundries	587 92	
Expenses of reporting Baltimore meeting	222 60	
Advertising	90 00	
Expense attending Council meeting	75 00	
Expenses, Savannah meeting	35 00	
	$2,304 50	
Amount carried forward to next year	418 84	
		$2,723 34

Cash in Merchants National Bank of Lawrence	$402 41
Cash in hand	16 43
	$418 84
Due from members	$1,330 00

Honorary Members.

Number on roll, Oct. 1, 1889	6
Died during the year	1
Number on roll Oct. 1, 1890	5

Active Members.

Number on roll Oct. 1, 1889	338	
Admitted Oct. 16, 1889	26	
		364
Resigned during the year	10	
Dropped " "	6	
Died " "	8	
	24	
Number on roll Oct. 1, 1890	340	
		364

Associate Members.

Number on roll Oct. 1, 1889	5
Admitted Oct. 16, 1889	10
Number on roll Oct. 1, 1890	15

Deceased Members.

Honorary.

Gen. Charles Roome, New York City.

Active.

O. E. Cushing, Lowell, Mass.
S. H. Douglas, Ann Arbor, Mich.
Theobald Forstall, Chicago, Ill.
E. J. King, Jacksonville, Ill.
John Fullagar, Napa City, Cal.
Walter B. Houston, Rahway, N. J.
Wm. Parrish, Seneca Falls, N. Y.
J. H. Rollins, Worcester, Mass.

On motion of Mr. Greenough, the reports were received and filed.

Mr. A. C. Humphreys, Chairman Committee of Arrangements, announced that the Committee had decided to make an innovation, in that they had extended to the ladies accompanying members of the Association, and to the ladies of the reception committee, an invitation to be present at the banquet on Thursday night. (Applause.)

The Secretary read letters of invitation and proffers of courtesies from the Savannah Yacht Club, and the Catholic Library Association, of Savannah. On motion of Mr. A. C. Humphreys, the invitations were accepted with the thanks of the Association.

ROLL CALL.

The roll call showed the following members were present:

Active Members.

Abel, W. G., Atlanta, Ga.
Adams, H. C., Phila., Pa.
Adams, Wm. C., Richmond, Va.
Battin, Isaac, Omaha, Neb.
Baumgardner, J. H., Lancaster, Pa.
Baxter, Isaac, Detroit, Mich.
Baxter, W. H., Petersburg, Va.
Beal, W. R., New York City.
Benson, F. S., Brooklyn, N. Y.
Blodget, C. W., Brooklyn, N. Y.
Boardman, A. E., Macon, Ga.
Boardman, H., Bangor, Me.
Borgner, C., Phila., Pa.
Bredel, F., New York City.
Bush, J. S., New York City.
Butterworth, I., Columbus, O.
Byrne, T. E., Brooklyn, N. Y.
Cabot, J., New York City.
Cartwright, M., Rochester, N. Y.
Chadwick, H. J., Lockport, N. Y.
Chambers, J. H., Trenton, N. J.
Chollar, B. E., Topeka, Kan.
Clark, W., Phila., Pa.
Coffin, J. A., Gloucester, Mass.
Coggshall, H. F., Fitchburg, Mass.
Collins, A. P., New Britain, Conn.
Connelly, T. E., New York City.
Cornell, T. C., Yonkers, N. Y.
Cosgrove, W. L., Atlanta, Ga.
Cowdery, E. G., Milwaukee, Wis.
Cowing, J. H., Buffalo, N. Y.
Crockett, J. B., San Francisco, Cal.
Curley, T., Wilmington, Del.
Dell, J., St. Louis, Mo.
Diall, M. N., Terre Haute, Ind.
Dickey, C. H., Baltimore, Md.
Douglas, D., Savannah, Ga.
Egner, F., St. Louis, Mo.
Elkins, W. L., Jr., Phila., Pa.
Findlay, J. H., Ogdensburg, N.Y.
Flemming, D. D., Jersey City, N. J.
Floyd, H. E., New York City.
Fodell, W. P., Phila., Pa.
Forbes, J., Chattanooga, Tenn.
Forstall, A. E., Chicago, Ill.
Foster, T. G., Montgomery, Ala.
Fry, C. C., Lynn, Mass.
Gardner, J., Jr., Pittsburgh, Pa.
Geggie, D. H., Quebec, Can.
Glasgow, A. G., Phila., Pa.
Goodwin, W. W., Phila., Pa.
Graeff, G. W., Jr., Phila., Pa.
Greenough, M. S., Boston, Mass.
Griffin, J. J., Phila., Pa.
Hambleton, F. H., Baltimore, Md.
Hanford, L. C., Norwalk, Conn.
Harbison, J. P., Hartford, Conn.
Harper, G. H., Kansas City, Mo.
Harris, J. A., Phila., Pa
Helme, W. E., Phila., Pa.
Hookey, G. S., Augusta, Ga.
Humphreys, A. C., Phila., Pa.
Humphreys, C. J. R., Lawrence, Mass.
Lansden, T. G., Washington, D. C.
Leach, H. B., Taunton, Mass.
Learned, W. A., Newton, Mass.
Littlehales, T., Hamilton, Ont.
Littleton, A. W., Quincy, Ill.
Ludlam, E., Brooklyn, N. Y.
Mayer, F., Baltimore, Md.
McCleary, A. J., Phila., Pa.
McCutcheon, J., Allegheny, Pa.
McDonald, W., Albany, N. Y.
McElroy, J. H., Pittsburgh, Pa.
McIlhenny, J., Phila., Pa.
McMillin, E., Columbus, O.
Milsted, W. N., New York City.
Mitchell, K. M., St. Joseph, Mo.
Mooney, Wm., New York City.
Morgans, W. H., Pontiac, Mich.
Norris, R., Jersey City, N. J.
Nute, J. E., Fall River, Mass.
Park, W. K., Phila., Pa.
Payne, M. J., Kansas City, Mo.
Pratt, E. G., Des Moines, Ia.
Prichard, C. F., Lynn, Mass.
Prichitt, S., Nashville, Tenn.
Quinn, A. K., Newport, R. I.
Ramsdell, G. G., Vincennes, Ind.
Ridgley, W., Springfield, Ill.
Roots, D. T., Connersville, Ind.
Rusby, J. M., Jersey City, N. J.
Russell, D. R., St. Louis, Mo.
Scriver, J. F., Montreal, Can.
Shelton, F. H., Phila., Pa.
Sisson, F. N., Albany, N. Y.
Slater, A. B., Providence, R. I.
Slater, A. B., Jr., Providence, R.I.
Smallwood, J. B., Baltimore, Md.
Smith, M., Wilkesbarre, Pa.
Snow, W. H., Holyoke, Mass.
Somerville, J., Indianapolis, Ind.
Taber, R. B., New Bedford, Mass.
Tayler, G. H., Warren, O.
Thomas, J. R., New York City.
Turner, T., Charleston, S. C.
Vanderpool, E., Newark, N. J.
Watson, C., Camden, N. J.
Weber, O. B., New York City.
Williams, E. H., Waterbury, Conn.
Young, J., Allegheny City, Pa.
Young, P., Knoxville, Tenn.

Associate Member.

Barrows, W. E., Phila., Pa.

At this point Vice-President Harbison took the chair, and President McMillin read the following address:

PRESIDENT'S ADDRESS.

Members of American Gas Light Association—Gentlemen: With hearty good will and fellowship I address you to-day, glad to find that, though surrounded with unfamiliar scenes, there are yet many familiar faces here.

We have met for the twofold purpose of profit and pleasure. That we will receive both in full measure is scarcely to be doubted. We will counsel together upon subjects of deep import to our fraternity. In union their is strength; we may, therefore, hope that under the broad light of discussion some truths will stand revealed, and some errors vanish like mist before the sun.

Though these meetings have been held regularly for nearly a score of years, we still find work to do, and willing hands to do it. Old questions, believed to have been intelligently solved in former years, present themselves anew, clothed in another garb, inciting phases of thought probably not dreamed of a decade ago.

With the array of talent that has kindly consented to address us on topics of interest, this must almost of necessity be a profitable meeting. Should it be otherwise, the result will be due to an absence of interest on the part of members, or a lack of ability in the presiding officer to conduct the proceedings in a manner tending to expeditious and connected discussion.

You will have presented to you papers upon the following subjects:

"The Extension of the Use of Gas for Purposes other than Illumination," by E. G. Pratt.

"The Mismanagement of Gas Works," by E. G. Cowdery.

"Gas Coals of the United States," by H. C. Adams.

"The Practical Efficiency of an Illuminating Water Gas Setting," by A. G. Glasgow.

"Inclined Retorts," by Frederic Egner.

"The Gas Engineer and his Pencil," by F. H. Shelton.

"Suggestions of Methods and Systems for Recording the Histories and Accounts of Gas Light Companies," by Wm. P. Fodell.

"Purification of Gas," by A. E. Forstall.

"The Undertaking of Electric Lighting by Small Gas Companies," by A. E. Boardman.

"The Pintsch System," by Richard M. Dixon.

It is to be regretted that the Council failed to obtain a paper upon a subject which, to my mind, will in the near future be one of great interest to our fraternity. I refer to the question of municipal control of lighting. From this direction danger to the lighting industry looms up portentously.

That much may be said in favor of municipal control of lighting cannot be denied by dispassionate and unprejudiced investigators; but that much greater reasons can be urged against it, I verily believe. Nothing can well be said in favor of municipal control of lighting that might not with almost equal force be applied to municipal control of street railways and telephones. The municipality is not a patron of either the street railway or the telephone to the same extent that it is of lighting companies; but if control is to be assumed upon the ground that the public streets are to be occupied, then the argument must apply with much greater force to railways than to gas companies.

Again, if the idea is to assume municipal control because of the quasi-public character of the business, and for the reason that so great a per-

centage of the citizens of the municipality are indirectly interested, then the application can be made with greater force to railways than to gas companies.

Writers who have taken the affirmative side of this question base their argument on the assumption that in a business that must be practically a monopoly, it is best that the municipality conduct it, in order, not that the work will be better done, but that the people may be served at a less cost. Does experience warrant the assumption that monopolists, as the term is applied to lighting companies, charge more for their salable wares than is charged in lines of business where competition, so-called, exists? I think it does not.

That competition exists amongst manufacturers and jobbers, will not be questioned, but that competition in *prices* exists to any marked extent in the sale of goods generally to consumers in cities may be seriously questioned. Grocers of towns and smaller cities have their uniform price for certain brands of flour, coffee, sugar, canned fruits, etc. The retail iron merchants have their card of prices from which they seldom vary, and bakers in almost every city have a uniform price for a definite weight of bread, and the same rule applies to the dealing in most all commodities.

But the Nationalist may say that the absence of monopolistic privileges tends greatly to reduce prices in these lines, and that the public derives benefit in that way. Is that true?

Do retailers of dry goods, boots and shoes, or even the operators in the lines above named, receive a less return on the money invested than do gas, electric or street railway companies? I venture the assertion that double the percentage of profit on investment is made in the very lines of business that are supposed to be in strongest competition. Gas and electric companies of Massachusetts paid 5 per cent. last year, and earned 7½ per cent. on a capital representing less than the actual cash investment.

Again, does experience warrant the assumption that municipalities will, or can, sell to the public at lower prices than do incorporated companies operating under municipal franchises? The preponderance of evidence is very largely against that assumption. One of the ablest and also one of the fairest articles, written upon the affirmative side of this subject that has come under my notice, is from the pen of a St. Louis citizen, and was published in the November, 1889, number of the *Forum*.

I believe the writer makes no pretentions to any practical knowledge of the gas industry. But he is a gentleman of keen discernment, a forceful writer, of unquestioned fairness, and a Nationalist from principle. Mistakes that are made are due, I believe, to lack of an intimate knowledge of the business, and not from a desire to misrepresent. In the *Forum* article reference is made to results obtained in the eight gas works in the United States owned by municipalities, and those results are accepted by the author as proof that gas works ought to be controlled by municipalities. Had the writer been an experienced gas manager he probably would have accepted the results as affording positive proof that municipalities should *not* control gas works.

Some of the works named are quite small, and it has not been possible for me to obtain the reports of their superintendents. But reports can be had from two of the largest—Philadelphia and Richmond—and I have accepted the *Forum* figures respecting Wheeling and other smaller places.

Philadelphia has now (and for aught I know) has always had intelligent management. While selling gas at a price much above the prices of some other cities similarly conditioned, it has but recently shown a profit at all commensurate with the magnitude of the business done. During the last fiscal year, after purchasing nearly one-third of its gas from a private corporation at 37 cents per 1,000 feet, it is able to show for the year a profit much smaller than would have been made by a private company manufacturing all its gas. On the gas purchased a saving of more than $200,000 was made. That is, it cost $211,500 less money to purchase from a private company 900,000,000 feet of gas than it would have cost the city to make that quantity. If a private Company owned those works it could, and probably would, sell gas at $1.25 per 1,000 feet, and earn more than 6 per cent. on a capital of $25,000,000.

At Philadelphia coal should cost 20 per cent. less than in Boston; a private corporation in the latter city, selling less than half the gas that is sold in Philadelpbia, charges from $1 to $1.30 per 1,000 feet, the average being about $1.25, or nearly 20 per cent. less than the price charged in Philadelphia ($1.50), yet the Boston Company paid 10 per cent. dividends on the par value of its capital stock last year. It is fair, however, to state that the capital stock does not correctly represent all of the money invested. The total quantity of gas sold in the State of Massachusetts last year, in villages, towns and cities, was sold at an average price that was less than gas is sold for in Philadelphia, and this, too, notwithstanding the greatly increased cost of coal in Massachusetts, and the additional disadvantage that the total of 75 different companies sold but little more gas than was sold in Philadelphia by the municipality. Apologists for the condition of affairs existing in the Quaker City say that it is an exceptional case, and that other departments of public service there are also managed extravagantly. I neither admit the implied charge, nor do I see the force of that argument.

But let us turn to Richmond, Va., where conditions are believed to be at least normal, and the management also intelligent. Richmond sells gas at a price ($1.50) 50 per cent. above that charged in another capital city located but little farther from gas coal fields. Giving Richmond the benefit of $1 per 1,000 feet for gas now *actually* furnished free for city use, the profits in the business are then less than the profits of the Company with which I have compared it, notwithstanding the fact noted above that Richmond taxes its patrons 50 per cent. more for its gas than does the private Company.

Wheeling may fairly be taken as a case in point which demonstrates the advantage of municpal control. There gas is sold at 75 cents per 1,000 feet. Yet even that will not be a striking instance, when the conditions are analyzed.

Coal at Wheeling costs (less amount received for residuals) but 4.5 cents per 1,000 feet of gas; it will, therefore, be readily seen that there are other works in the country controlled by private companies who sell their gas at as low figures as does Wheeling, *plus* additional cost of coal. In the article referred to it is asserted that did the Wheeling works belong to a private company gas would now be selling at $1.50. The best reply to this is to note the fact that the Pittsburgh Gas Company, similarly located, sold gas at $1 per 1,000 feet long before Wheeling did, and that another capital city of about the same population as Richmond, making about the same quantity of gas, and located 250 miles from the gas coal field, sells gas for $1.

If it is a fact that the municipal governments generally secure intelligent management for their gas works, then why is it that the net results are not as good as those of private companies? There are two or three reasons for this, all, however, being based in a greater or less degree on the fact that the municipal works are under political domination. The *Forum* article lays great stress (and properly too, though important items of expense were omitted) on the figures given by our deceased Past-President, Theo. Forstall, in his annual address in 1883; yet in that address Mr. Forstall put the cost of labor for gas in holder at 15 cents per 1,000 feet, while the cost, as nearly as may be ascertained, is at Philadelphia, 31 cents; Richmond, 50 cents; Danville, 45.8 cents; Alexandria, 34.5 cents; Charlottesville, 34 cents; Wheeling, 26 cents; Bellefontaine, 32.8 cents; Henderson, 23.8 cents. For the total gas made, the cost of wages is more than 100 per cent. above the estimated figure of cost made by the gentleman on whose statements are based many of the conclusions in the *Forum* article.

Probably in no other one item would the baneful influence of politics be so strikingly exemplified as in that of labor. Notwithstanding the present high cost of labor at the works of one of the municipalities named, the item appears to be low under the present regime, compared with that of former years. I quote from the very interesting report of the chief officer. He says, speaking of the condition in the Spring of 1887: "The men numbered 2,257, and the cost of skilled and unskilled labor, especially the latter, was startling. The manufacturing capacity was insufficent to meet the demand at the period of greatest consumption, and the pipes and mains were totally inadequate to distribute the gas made. In fact the works were short of everything but men."

Workmen are voters, and in municipal works they are often more than that, they are political workers, and must be taken care of, and the gas works managers are impotent to control the size of the pay roll, and did they attempt it, doubtless their employment by the city would soon be a thing of the past.

It is asserted that while 90 per cent. of the water works of the country are under municipal control, there is not an instance on record of political corruption. The assertion is not based on fact, but if it were, gas intersts in general, *under private management*, may readily submit to a comparison with water works under *municipal control*. The average price charged for gas now in the United States is not 50 per cent. of the price charged 20 years ago, while it is safe to say there has been practically no reduction in the average price charged for water during the same period. The customary charge for water in residences is 20 cents per 1,000 gallons; 20 cents multiplied by 7.5 gallons equals $1.50 per 1,000 feet, or actually a higher price than is charged in most large cities for gas.

Much is made of the fact that with lighting companies under municipal control, the street lighting practically costs nothing. A more unfair

practice than the one that makes the assertion virtually true, would be hard to conceive. The private patrons of the works, generally much less than half of the population, are by this practice made to pay not only their own gas bills, but also the entire cost of street lighting and the lighting of public buildings.

The prediction is now made that the policy inaugurated by Philadelphia, that of buying gas from manufacturing stations and distributing through municipal mains, *will become contagious.* It will be advocated by nationalists and communists generally. In this way duplication of mains will be avoided, while competition may be had in manufacture. What a harvest this will furnish for the patentees of "cheap processes!"

That communities are occasionally imposed upon by lighting companies cannot be truthfully denied. That gas companies are often put to enormous expense to maintain their rights is a fact familiar to us all. What plan can be suggested tending to fairer dealing in the future? There are three plans or modes of protection that suggest themselves. First: That of having a State gas commission, as in Massachusetts. The trial of that plan has proven eminently successful. Second: Statutory control, with provisions limiting dividends, but allowing increased dividends on reduction of price, thus giving the public an opportunity to profit by new and improved processes. This is practically the plan practiced in England, and which practice has contributed largely to give gas to the English public at about half the price paid elsewhere. This has not tended to benefit electric companies. Third: The Ohio plan which gives to city councils the right to fix the price of gas. The Supreme Court of Ohio has in two instances decided that law to be constitutional; but it has also said that the price fixed shall be a reasonable one. The United States Courts have decided in similar cases that prices thus established shall not only be reasonable, but that the question of reasonableness must be judicially ascertained.

The Ohio plan is weak in this, that it does not specifically guarantee freedom from the raids of so-called competitive companies. But while the law is thus defective by omission in its wording, the practical effect has been to virtually exclude would-be competitive companies from Ohio cities. It may be safely asserted that any plan adopted for the benefit of the people which does not prohibit duplication of gas mains must ultimately fail of its object.

A few years ago there were strifes existing between various systems of gas making; coal gas men were solidly arrayed against water gas advocates. To day there are few large cities in the country but what are supplied, at least in part, with water gas. Indeed, it may well be an open question whether the annual production of coal gas in the United States is now as large as the production of water gas.

There are no longer men who pride themselves that they are—under any and all circumstances—strictly coal gas, or strictly water gas engineers. They are gas engineers. Possibly a few years hence they will be *light* engineers. The world moves and the members of our Association do not lag behind.

While there may be companies making water gas that might with advantage to their stockholders have continued to make coal gas, yet, on the whole, it will be admitted that if no water gas was made in this country at the present time, we would all be deriving 5 to 10 cents less on the 1,000 feet of gas made for our residuals than we are now obtaining. Angels are sometimes entertained unawares even in modern times.

There is one branch of the gas industry that does not seem to be making rapid progress, the much abused and much praised fuel gas. The question as to whether it is to become a factor of importance in our business is apparently almost as far from being solved to-day, as when we met a year ago. A few more daring spirits have tried and are trying it. The latest trumpet blast comes from Boston. Jackson, Mich., continues to make it, and practically the same parties, I believe, have recently commenced operations at Hyde Park, Chicago. The effort at Akron, O., is reported to have prospects of final success. Possibly many other places have tried and are trying it on a small scale. Not much encouragement can be drawn from these scattering attempts after the promises of success that have been heralded broadcast for three or four years.

On the other hand, I know of no occurrence that should be regarded as especially discouraging. On the whole, we may conclude that some advance has been made; quite as much, perhaps, as was made during the first three years in the history of water gas making, or during a similar period in the history of incandescent electric lighting.

Theoretically, it can be clearly shown that fuel gas cannot be made by any known process so cheaply as to be able to compete with coal for domestic use. But this does not signify much, after all. There are cities in the country where soft coal can be had for $1.50 to $2 per ton; and yet, in these same cities, many thousands of tons of anthracite coal are annually sold at $6.50 to $8 per ton. Why? Because it is a cleanly fuel. Will not the same rule hold good as to gas fuel?

But the water gas advocate says producer gas will not do for fuel. It is too heavy to transport, and it is very low in heat units, and the flame is so easily extinguished as to make the gas dangerous to use. The producer gas man's reply should be, "Well, water gas man, go on and sell your non-illuminating fuel water gas, if you want to; I will not disturb you, nor try to compel you to use even a mixture of producer gas."

The coal gas advocate not only endorses all that the water gas man says about producer gas, but he will exhibit an array of figures, that to his mind, should convince any sane man that fuel water gas, owing to *its* low calorific value, must, of necessity, be very much dearer for the poor consumer to use than would be plain 17 candle coal gas. Of course he does not forget to bring out all the expert testimony showing the absolutely poisonous properties of water gas.

Both the producer gas and water gas advocates will tell the coal gas man that while his product is all right, his prices must be such that after the consumer has paid for warming his premises with coal gas during the month of December, the said consumer would be glad to inhale a little carbon monoxide as an anæsthetic; that indeed the dose would need to be quite large to restore the nervous system to its normal placidity.

Now, if each and every one of us would devote more of our time and energy to reducing to a commercial commodity our own ideas, and less of our time trying to convince the world that our confreres are wrong, I believe that when we assemble a year hence the doubt that now hedges about the fuel gas question will have been dispelled, and it will be pronounced a failure, or admitted to possess the elements of future success.

Unless *all* be failures, some one of the processes or systems will be better than the others. Both fame and fortune will reward the successful inventor, therefore it is not wise to waste our time trying to convince others that they are on the wrong road. Let them alone! Their mistakes tend to increase our chances of success.

The twin industry, electric lighting, has, during the last year, been making strides unparalleled. It progress since the first light was commercially used is almost beyond conception. Like water gas, this industry was first received by the members of our Association as a subtle enemy of the gas business. Now it is said that more than 300 gas companies employ it—some with the result of increasing their dividends, while others are apparently using it as an agency for disbursing surplus.

An authority asserted a year ago that there were then 300,000 arc and 3,000,000 incandescent lights in the United States. There must be many more now. When we remember that 20 years ago there was not an electric light commercially used in all the world, we may well be amazed at the progress made.

I need not tell you that *not all* of this wonderful success has been due to the real merits of electric lighting. Part is due to merit, part to the charm that attaches itself to anything new, but a greater part to intelligent promotion, energetic and scientific management, and to astonishing liberality. Officers of many gas companies might with profit sit at the feet of some electric managers and gather crumbs of wisdom.

Possibly in the not far distant future your Council will recommend to the Association an amendment to the constitution. The amendment will strike out the word "Gas" in the name of the Association, or suggest the alternative proposition to add the words, "and electric."

How to popularize gas lighting, is as live a question to-day as it was 10 years ago. Consumers continue to discredit the meter, and too often also the meter reader, and not seldom the whole office force. It is not uncommon to hear a man say that while electric lights may cost him more than gas, he has the satisfaction of knowing beforehand just what he has to pay for his light, while with gas, he says, it is always the unexpected that is happening. Errors in reading do sometimes occur, yet we all know that, taken one month with another, the consumer pays only for the gas that is consumed on his premises. But he feels that he is at the mercy of the gas company, and, knowing the weakness of human nature, he concludes that he is occasionally taxed for more gas than he has used.

As gas company officers and clerks cannot ever hope to entirely disabuse the average consumer's mind of his erroneous ideas respecting the measurement of gas, it behooves us to try in other ways to please our patrons. Too often sufficient personal attention is not accorded a consumer. I have many times seen a consumer approach the pay window of a gas company's counter to pay a bill, wait there for two or three minutes, and, receiving no attention, move to another window, only to wait two or three minutes more. By this time he begins to feel provoked, and perhaps concludes to go to his office and let the gas company collector come there for his money, possibly saying to himself, "If I cannot

be waited on when I have taken the trouble to come to the gas office, they will have to do as I have to do with my accounts—send after them."

Of course instances of this character occur only when clerks are busily engaged at other work, but no other work should ever stand in the way of giving a customer immediate attention, even though his visit may be to find fault instead of to pay a bill.

It is not an uncommon sight in the offices of large gas companies to see consumers formed in a line in order to secure their turn at the pay window, and this, too, when perhaps there are several other pay windows with no clerks in attendance. It is unwise to permit this. One may good naturedly get into line with a dozen others before him, if he is after a ticket to the opera; he then does it of choice, and for his contemplated pleasure. But in a gas office he will feel that he is being inconvenienced, and possibly humiliated, wholly for the gas company's benefit.

Some large companies have introduced the practice of having a number of sub-offices or pay stations scattered throughout the city, these offices being controlled by some express company. The practice is popular with consumers.

In cities of 100,000 to 500,000 inhabitants there may well be 10 to 40 pay stations. The gas bills are delivered by mail or by hand to the consumer's residence or office. Before the expiration of the discount period—if one is allowed—the consumer steps to the nearest pay station, generally a drug store, and pays the gas bill. He has saved one or two street car fares and perhaps an hour's time; he has attended to the matter at his leasure, generally after usual business hours. For this convenience he pays the agent 5 cents on bills of $5 and under, and 8 cents on bills over $5. The next day the agent turns over the gas collections and half the commission to the express company. For *his* trouble he retains one-half the commission and probably makes a sale to the gas consumer before he leaves the store. The express company receives as compensation for its trouble and responsibility half the commission, and largely increases its express business proper by having these convenient stations for receiving parcel packages.

While it is both right and politic to do all we can consistently to keep our patrons satisfied, it is also important, not only from a financial standpoint, but from a humanitarian view, that we endeavor to render pleasant the condition of our employees, especially those engaged in and about the generating plant. The life of a gas maker is a dreary one at best, and a little attention on the part of the company to his personal comforts will generally be appreciated. Reading rooms, card rooms, bath rooms, a hall in which to hold meetings, and where the younger element may occasionally enjoy an evening dance, may be safely considered a good investment. Try it.

Raiders are still abroad in the land. The man with processes that can make gas for almost nothing, and still have a valuable residual, do not seem to despair in their efforts to get a standing in cities already well supplied. If they were only modest enough to go to small towns not now supplied with gas, and demonstrate the value of the process there, they would merit the everlasting gratitude of existing companies. Until statutes of the several States have made raiding impossible, the consumer will not be able to purchase gas at the possible minimum price.

In Association matters, I am pleased to report a continued growth in membership. The active members now number 340; the associate members 15; honorary members 5; total membership 360.

While the membership is increasing satisfactorily, the unpaid dues are also increasing to an alarming extent. Personally, I had supposed that members failed to pay simply through neglect or forgetfulness; but the Secretary informs me that 90 per cent. of sight drafts made on members (who had previous notice that the drafts would be made) were returned unpaid. The dues are certainly not so large as to be burdensome, and yet in the aggregate the unpaid dues make a total sum that is indispensable to the Association. May we not hope that members will give heed to this appeal, and promptly remit to the Secretary?

The American Association for nearly a score of years has been almost annually the recipient of hospitality at the hands of gas companies, and from our friends engaged in business kindred to that of our own. In nearly all the large cities in the country we have been royally entertained; several of the cities have so contributed to our enjoyment on two or more occasions. It has doubtless been a pleasure to the donors to thus contribute, and the courtesies have been greatly appreciated by the attending members. But may I not ask, without being misunderstood, if the time has not almost arrived when the tender of a banquet may be declined with propriety, and without giving offense?

I earnestly suggest that action be taken at this meeting looking to the abandonment of free banquets, and that the rule of having each member pay for his seat at the banquet board be inaugurated at our next meeting, the Association paying only for invited guests.

The question of when the term of newly elected officers of the Association shall begin and when terminate is one that at some future date may be of importance, and I respectfully suggest that the question should be finally determined during this meeting.

The constitution provides that officers shall be elected annually, and that they shall assume office immediately after the meeting at which they have been elected. That is not quite clear. What constitutes the meeting referred to? The constitution says that the annual meeting shall be held on the third Wednesday of October. It does not provide for a three days' session, but no one would question the right of the Association to continue the meeting by adjournment from day to day; and if this is admitted, then it has the same right to adjourn from week to week and month to month. If this be true, and the *meeting* continues until an adjournment without day is taken, the officers-elect might be kept out of office until the next annual meeting. Of course, such a proceeding is not likely to occur. The question can be definitely settled by the Association adopting a resolution in substance as follows:

"*Resolved*, That it is the sense of the Association that under the provisions of the constitution the officers elect should enter upon the discharge of their respective duties on the Saturday succeeding the third Wednesday in October of each year."

It has been the practice to have the old officers hold over during the three days of assembly. This seems proper enough, but if a *sine die* adjournment is had on the evening of the second day, then for the officers to hold over on the third day would seem to be an infraction of the constitutional rule, a rule in this instance more honored in the breach than in the observance.

There is room, however, to question the propriety of the old officers holding their positions *after adjournment on the day that formal announcement has been made of the result of annual election.*

But whether or not this construction of the constitution is a fair one, it is quite clear that the Association may by resolution declare that construction to be the intent of the wording of the constitution and the desire of the Association. I, therefore, suggest to you that a little spice might be added to our proceedings by making this the practice. The officers are elected on the first day. The president-elect can prepare a short address during the evening and assume the chair on the following morning. This gives him an opportunity to deliver his inaugural at the beginning, instead of, as by the anomalous practice now in vogue, delivering an inaugural at the close of his term. Of course, this same officer would submit a message at the succeeding annual meeting.

Should this view of the question meet your approbation I suggest that the following preamble and resolution be adopted:

"*Whereas*, The constitution provides that the annual meeting of the Association at which officers are to be elected shall be held on the third Wednesday of October of each year; *and whereas*, The constitution also provides that the officers elect shall assume office immediately after the meeting at which they have been elected, now, therefore, be it *Resolved*, That it is the sense of the Association that the election of officers shall occur on the third Wednesday in October of each year, and that the officers-elect shall assume office the morning of the day succeeding their election." I feel I may with propriety recommend this change in our practice as it tends to curtail my term of office if it is adopted.

We may expect at this meeting a preliminary report from the Committee on the World's Fair. In this connection I respectfully submit to your consideration whether—not only our Council, but also our sister Associations, may not have erred, if I may be pardoned the word, in the composition of their committees.

I believe all the Associations, except the Ohio, have associate members, and I fear that class has not received adequate recognition on the committee. If a mistake has been made, we all know it is the result of oversight, and not intentional. It is doubtful if 20 persons eligible under our present constitution for active membership, will make any sort of an exhibit at the great exposition. Is it not eminently proper, then, that the class of membership that is expected to make the display should in a very large measure dominate the committee of arrangements? I suggest that at least a large representation on the committee should be offered to associate members, and to active members who are engaged in manufacturing gas apparatus.

I feel it a duty incumbent, though by no means a pleasant one, to warn the Association that there is possible danger ahead, and that it will require caution and nerve to prevent us making a debt in connection with the World's Fair exhibit that may embarrass the Association for years to come. As the Committee is now constituted, we all know that no money will be expended injudiciously, but if the Association should order

that no debts be incurred for which the Council has not made an appropriation, and that the Council be instructed to make no appropriation for which the money is not at the time in the Treasury, it would be an additional safeguard, and could do no possible harm.

Never before in the history of the Association has death made such inroads in the list of our membership. Nor have we ever before in any year had to chronicle the death of so many who were eminent in our profession. In the order of demise:

Edward J. King, died October 28th, 1889; Oliver E. Cushing, January 17th, 1890; Theobald Forstall, January 19th, 1890; William Parrish, January 19th, 1890; Walter B. Houston, April 3d, 1890; John Fullagar, April 27th, 1890; James Henri Rollins, June 19, 1890; General Chas. Roome, June 28th, 1890; Prof. S. H. Douglas, August 26th, 1890.

In our living membership could nine names be selected of persons who, taken all in all, have done more to influence the views and mould the character of the American gas engineer of to day, than did the departed friends whose names constitute this sad list? Past-Presidents of the American Association, Past-Presidents of sister Associations, men eminent for their engineering talent, for their scientific acumen, some of them distinguished for their long years of faithful and successful service. All honored for their personal worth, their integrity and high sense of honor, and for their social amenities. They are gone, but their example remains. To their friends they are dead, but to the professsion the influence of their lives is yet a living reality.

To the members who have kindly prepared papers to be read at this meeting, I tender my sincere thanks.

For the distinguished honor of having been called to preside over the affairs of the Association I feel deeply grateful.

Committee on President's Address.

The Chairman—Gentlemen of the Association, you will agree with me we have been permitted to listen to words of wisdom as written out in the address of our President. What is your pleasure with regard to this address?

On motion of Mr. Cowdery, the address was referred by the Chairman to a committee of seven for consideration and report. The gentlemen named on the Committee were Messrs. E. G. Cowdery, Oscar Weber, A. G. Glasgow, Isaac Baxter, D. H. Geggie, W. H. Baxter and G. S. Hookey.

Welcoming Commissioner Barker.

The President—I see that the Association has this morning the honor of the presence of a member of the Massachusetts State Gas Commission. In your behalf I would invite Mr. Barker to come forward and give us the honor of his presence on the platform. Gentlemen of the Association, I take pleasure in introducing to you Mr. Barker, of the Massachusetts Gas Commission, whom many of you, and indeed all of us, already know.

Mr. Barker.—Mr. Chairman and gentlemen: I did not understand that this was a part of the programme. I supposed I might be permitted, like the Past-Presidents of the Association possibly, to take a seat upon the platform, and not be asked to take up your time with anything like an address. I may, however, thank the Chairman for the courteous words of invitation he has pleased to tender to me in my official capacity. I am especially grateful for the very cordial invitation which I had previously received to attend this meeting of the Association. The Board is under great obligations to the members of this Association for the very kind and cordial assistance which it has been tendered in the past; and the very pleasant welcome which I have already received from the members of this Association (from many of them individually) at this re union indicates that they are still to continue to assist us in our work, and to thereby be of very substantial benefit to the various companies within our jurisdiction. I am aware, Mr. Chairman, that there is a very interesting, and quite a large amount of business to be transacted; I am interested in it myself: I know that the Association is here for business purposes; and the very large attendance which is here forbids absolutely that I should occupy any more of your time. I thank you very cordially for your courtesy, and for your pleasant words. (Applause.)

Report of Committee on Nominations.

The President—Is the Committee on Nominations ready to report? If so, the Secretary will read the report of the committee.

The Secretary read the following report from the Committee on Nominations:

The Committee on Nominations beg to report that they recommend the following gentlemen as officers for the ensuing year.

President.—John P. Harbison, Hartford, Conn.

Vice-Presidents.—Wm. H. White, New York; A. E. Boardman, Macon, Ga.; W. H. Pearson, Toronto, Canada.

Secretary and Treasurer.—C. J. R. Humphreys, Lawrence, Mass.

Members of Council.—(Term expires, 1892)—Charles H. Nettleton, Birmingham, Conn.; James Somerville, Indianapolis, Ind.; A. W. Littleton, Quincy, Ills.; Frederic Egner, St. Louis, Mo.

For the Committee,
Thos. Turner, Chairman.

Election of Officers.

On motion of Mr. Littlehales, the report was adopted, and the Secretary was instructed to cast the ballot of the Association in favor of the election of the nominees. Having reported to that effect, the following

Introductions and Responses

ensued:

The President—Gentlemen, you have elected to preside over the meetings of the Association for the coming year (and, I hope, commencing to-morrow morning at 10 o'clock) my esteemed friend, Mr. Harbison, who will please come to the platform. It affords me a great deal of pleasure to introduce to you, Mr. Harbison, of Connecticut, and a sample of the noble yeomanry of New England. Many of you have not before seen him, but all have heard of him. I hope you will lend him the same assistance in his work for the coming year similar to that you have given to the present incumbent of the chair. (Applause).

Mr. Harbison—Mr. President, gentlemen, brothers of the American Gas Light Association:—I feel deeply grateful for the honor conferred upon me, as I should. To be chosen the presiding officer of the American Gas Light Association is an honor to which any member ought to aspire. I know of no greater honor that can be put upon a man in our profession, in any part of the country, than to be called to preside over the deliberations of a body of men like those before me. As I review the past, and remember who have occupied this honorable position, I feel the responsibilities which devolve upon me; and I accept the honor conferred with fear and trembling, knowing with what honor, grace, dignity and efficiency, the President's chair has been and is now filled. I shall rely upon the cordial co-operation, hearty sympathy, efficient and active service of every member, active, associate and honorary, of this Association, for the success of our gathering during the year to which we are looking forwerd; and I hope, as I shall earnestly strive, that when it shall be my pleasure and privilege to introduce my successor, I may, in some small degree, come up to your expectations in the conduct of the business of the year to which we are looking forward. Again gentlemen, I thank you for the honor. (Applause).

The President—You have elected for your Vice-Presidents William Henry White, of New York, A. E. Boardman, of Macon, and William H. Pearson, of Toronto. Captain White is not here; and I believe that Mr. Pearson is not here. Therefore Mr. Boardman will speak for the other two as well as for himself.

Mr. Boardman—It is a very unexpected pleasure that I have of addressing you in behalf of my brother officers as well as of myself. It is not often that I get a chance to say anything, and for that reason I am more than grateful to the President for giving me this chance. You also will probably be very grateful that my remarks will be very brief. Having two associates in the Vice-President's chair, I will give you the thanks of those gentlemen for the honor you have conferred upon them; and I hope, when, in their turn, it is necessary for them to conduct the business of the meetings, they will be able to do it as gracefully as those who have and are presiding over them. Again I thank you for myself and for them.

The President—For members of your Council you have elected Mr. C. H. Nettleton, who is unfortunately absent, Mr. James Somerville (the distinguished sycamore from the West), Mr. A. W. Littleton (the honored Secretary of the Western Association), and Mr. Frederic Egner (a distinguished engineer from the West), and we shall be glad to hear from them in the order named. First, Mr. Somerville.

Mr. Somerville—Gentlemen, I thank you very much for electing me to this honorable position. I will try to do my duty.

The President—Mr. Littleton appears to have left the room. Mr. Egner.

Mr. Egner—Mr. President and gentlemen, I thank you for the honor conferred. I cannot say very much, because everything has been said by my predecessors in speech making, and I hope, therefore, you will excuse me. I trust also that I will do my duty, as Mr. Somerville has promised. I will try to, anyway.

(To be continued.)

[Continued from page 582.]

Flue Gases from Steam Boiler and other Furnaces.

The chief defect which is common to both of these apparatus is the use of water, which, unfortunately, absorbs a very much larger amount of carbonic acid gas than it does of either of the other constituents of flue gases, and it is always possible that in the mere process of charging the burette with the sample of gas some carbonic acid may be absorbed by the water which is being replaced by the gas, and the result of the analysis thereby vitiated. The right liquid to use in the place of water is undoubtedly mercury, but, on account of its great weight, which, as well as its expensiveness, compels the use of comparatively small quantities, it is not well adapted for use outside the laboratory.

Mr. Stead's analyzing apparatus,* Fig. 3, consists of a wooden framework which supports a pair of tubes *A* and *B*, connected by a breeches pipe to an india-rubber tube which unites them to a vessel of mercury

FIG. 3

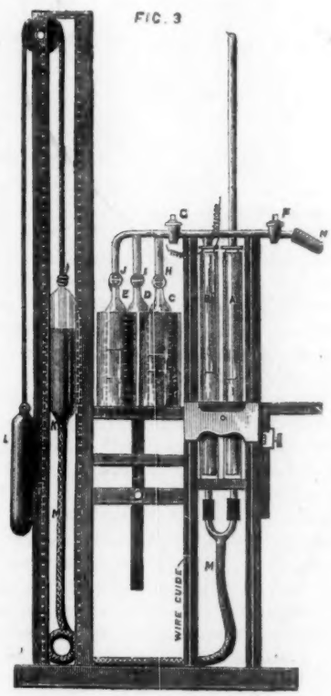


FIG. 4

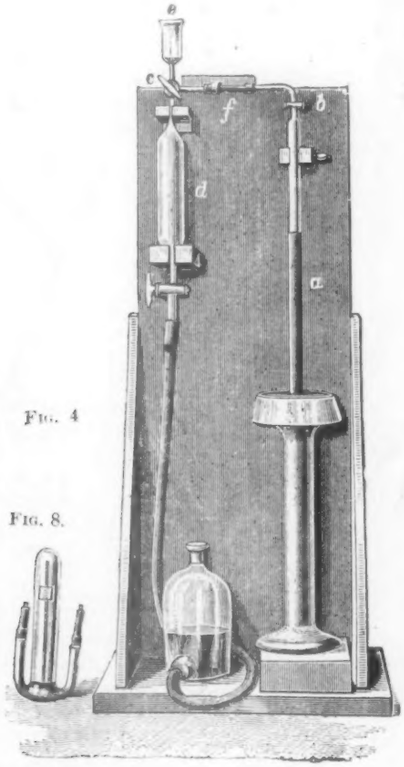
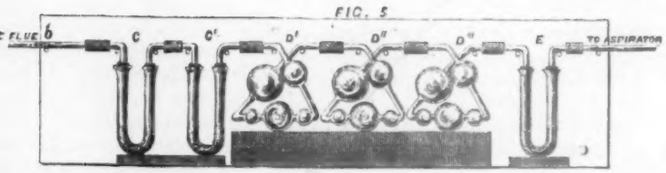


FIG. 8.

FIG. 5



K, suspended by a cord passing over a pulley, and balanced by a weight *L*. The tubes *A* and *B* are of glass, and are surrounded by water jackets, also of glass. The tube *B* is graduated, and a small spirit level runs on slides in front of the tubes, and enables the mercury to be set level in them, and as the tube *A* is open to the atmosphere the pressure in *B* must be the same when the mercury columns are level. *C* is an inverted bell-tube dipping into a beaker of caustic potash. *E* another bell-tube containing hydrogen, and *D* a similar inverted bell-tube covering a pair of platinum poles, by means of which the water contained in the beaker can be decomposed by means of a current of electricity produced by a battery of six small cells, which also serves to send an electric spark, by means of a Rhumkorff coil, through the top of tube *B*. *F*, *G*, *H*, *I*, *J* are cocks to various parts of the apparatus. In working, the mercury in *K* serves the part of the water of the level bottle in Orsat's apparatus, connection to the supply of gas being through *N*. *B* is filled with gas by manipulating *K*, which is adjusted till the mercury stands at the same level in *A* and *B*; the gas is then passed into the caustic potash tube, whence it is returned, after absorption has taken place, into the vessel *B*, where it is again measured, the operation being repeated to secure accuracy. The carbonic acid is thus determined. Some water is now decomposed in *D*, and the explosive mixture allowed to pass into *B*, where it is exploded by the electric spark; any carbonic oxide present is thus burned, combining with some of the free oxygen almost always present in furnace gases. The gases are again passed into *C*, where any carbonic acid produced by the combustion of carbonic oxide in the last process is absorbed, and its amount determined, when the gases are again measured off in the tube *B*. To determine the amount of free oxygen a measured quantity of hydrogen from *E* is passed into *B*, and the mixture exploded; water is thus formed, and the amount of oxygen that was present is shown by the reduction in volume. The remainder is in this, as in all the other processes, assumed without sensible error, to be nitrogen.

Mr. Wilson's apparatus* resembles in some respects those of Bunte and Orsat, already described, but its most important feature is that the whole operation is conducted over mercury. The gas is measured in the tube or eudiometer *a* (Fig. 4), whence it is passed through the cock *b* and three-way stop-cock *c* to the absorption vessel or laboratory *d* by means of the level bottle, some mercury being made to follow it so as to sweep out all the gas from the connecting tube. The various reagents, which may be the same as those specified in the processes already described, are put into the cup *e* as required, and then admitted through the three-way cock into the laboratory vessel. When the absorption is complete the level botttle is raised and the gas is thus caused to flow back into the measuring tube. When the reagent rises to *c* the three-way cock is turned to communicate with the cup, so that the reagent flows into it. Some mercury is then driven over into the measuring tube to clear the gas from the capillary connecting tubes.

The two ends of the capillary tubes at *f* are made funnel-shaped and connected by a thick india-rubber tube. By lowering the measuring vessel when the gas passes from it to the absorption vessel, and *vice versa*, the whole of the gas is driven out of the tube by the current of mercury. The absorption vessel can be readily disconnected for the pur-

The Journal of the Royal Agricultural Society of England. Part II. No. XLVI, October, 1887.

*See Mr. Wilson's report on his tests in connection with trials of motors for electric lighting, *Journal of the Society of Arts*, February 15, 1889.

pose of cleaning it. Compared with the volumetric methods of analysis described above, all gravimetric methods are troublesome and tedious, and, moreover, demand a greater amount of manipulative skill on the part of the operator as well as the employment of delicate weighing apparatus.

In the elaborate series of trials of a warm blast steam boiler by Mr. J. C. Hoadley, of New York, the flue gases were carefully analyzed gravimetrically in a specially designed apparatus, full particulars of which are given in Mr. Hoadley's full and interesting report.* Such elaboration as this is, however, seldom required, but it is often very convenient to be able to estimate the amount of aqueous vapor in the flue gases, which cannot be done by any of the processes described above.

The apparatus shown in Fig. 5, as used by Mr. B. Donkin, Jr., and the late Mr. Frank Salter, has been found to answer very well for this purpose. It consists of an aspirator which is filled with water at the commencement of the experiment, and which can be emptied at any required rate by means of the stop-cock, the space occupied by the water run out being filled by gases from the flue, which on their way to the aspirator pass through various tubes, etc., as follows: *b* is a tube of hard glass containing a plug of asbestos which serves to filter out and retain any particles of carbonaceous matter, the amount of which is determined by weighing the tube with the plug in it before and after the experiment, and when required the carbonaceous matter thus arrested may be subjected to analysis and its composition determined.

C and *C'* are bent tubes containing pieces of dried calcium chloride which absorb all traces of moisture from the gas as it passes through them. *D'*, *D''* and *D'''* are potash bulbs, and may be either of Liebig's pattern, as shown, or of Geissler's, which is perhaps better. These absorb all the carbonic acid gas which, on account of its solubility, should not be collected over water in the aspirator. *E* is a safety tube containing calcium chloride to arrest any moisture carried over from *D'''*. The oxygen, nitrogen and carbonic oxide (if any), which are but very slightly soluble in water, are allowed to pass into the aspirator, where their volume is measured by the quantity of water which is run out.

The aspirator is provided with a thermometer and a water gauge so that the temperature and pressure of the gases it contains may be noted at the same time as their volume is measured.

The respective proportions of oxygen, nitrogen, and carbonic oxide are determined by analyzing samples from the aspirator by either of the volumetric processes described above, and from the data thus obtained the respective weights of these gases are easily calculated. The increase in weight of the potash bulbs *D'*, *D''*, *D'''*, and the safety tube *E*, gives the weight of carbonic acid, whilst the moisture is determined by the gain in weight of the calcium chloride tubes *C* and *C'*.

This process is more suitable for a careful experiment, when it is desired to determine the distribution of heat in the furnace and flues, than for everyday use; for the results cannot be arrived at till the end of the experiment, whilst one of the chief objects in analyzing furnace gases is to ascertain the condition of the fires from time to time with a view to their possible improvement.

The above process has been employed in several boiler experiments, in addition to the examination by Bunte's process of samples taken periodically, with satisfactory results, the average of the periodical samples working out very closely to the result of the continuous sampling.

Taking Samples of Gases.—When, as it frequently happens, the analyzing apparatus cannot be brought to the furnace, it is necessary to have a ready means of conveying samples of the gases to the apparatus.

The ordinary aspirator naturally suggests itself for this purpose, and any vessel of suitable size, provided with a cock by which the water filling the vessel can be run out and another by which the gas can be drawn in, may be used for the purpose. This, however, is not a satisfactory piece of apparatus, for there must always be a certain length of tube between the point from which the sample is drawn and the aspirator, and some means should be provided for clearing this of the air which is sure to be in it.

The arrangement shown in Fig. 6 provides for this clearing of the sampling tube. It consists of two bottles, say, of half a pint capacity each, connected by tubes as shown, in such a manner that by raising one bottle the liquid contained in it is syphoned over into the other, causing a partial vacuum in the first which is replaced by gas from the flues. By raising first one bottle and then the other, the liquid is caused to flow from one to the other several times, and the air that was contained in the pipes is thus got rid of, or, at any rate, becomes so much diluted with the gases as to no longer seriously affect the composition of the sample.

Instead of the arrangement of syphons shown in the figure, bottles with openings near the bottom as well as at the top can be used advantageously.

But with these bottles, as with the aspirator, there is still the drawback of absorption. Of the gaseous products of combustion the most important is the carbonic acid, and it unfortunately happens that this gas is the only one that is soluble in water to any appreciable extent, and it may easily happen, even with the most careful handling, that a portion

FIG. 6.

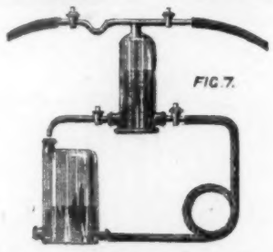


FIG. 7.

of the carbonic acid is absorbed in the water of the sampling bottle. To avoid this the water is sometimes replaced by a strong solution of common salt, or a dilute solution of hydrochloric acid, in each of which carbonic acid is rather less soluble than in water, but not to a sufficient extent to allow implicit reliance to be placed on samples so taken, unless they are to be examined soon after they are drawn. The syphon bottles are in this respect also rather better than the ordinary aspirator, because in passing the gas in and out of the bottle in order to clear out the air from the pipe, the liquid becomes saturated with carbonic acid and so does not abstract any of that gas from the sample.

Vessels exhausted of air are sometimes used; these are connected to the flues and then opened so that the vacuum is replaced by gases from the flue, but in this case, too, the difficulty is to clear the connections of air before the operation.

There is no doubt that furnace gases can only be satisfactorily collected over mercury, which neither absorbs nor is acted on by any of the constituents. The objections to its use are (1) its cost and (2) its great weight, both of which tend to make the quantities dealt with very small, and consequently more susceptible of error in the course of analysis.

At the engine trials of the Royal Agricultural Society at Newcastle, Mr. Stead collected samples of the furnace gases from the boilers under trial with the apparatus shown in Fig, 7, which is another form of the syphon bottles (Fig. 6), and is very convenient for use, although the quantity of mercury employed makes the weight considerable.

In order to overcome in some degree the danger of dealing with a sample of gas which forms but a very small portion of the total gases, a large aspirator may be used in connection with the small sampling bottle. The large aspirator draws a considerable volume of gas from the flues, from which in turn the mercury bottle takes its supply. Thus the sample eventually examined is a sample of a larger sample and probably fairly represents the whole. This plan was adopted by Mr. M. Longridge in an experiment on five Lancashire boilers, and another on a Babcock and Wilcox boiler in 1887.* The analyses of the samples thus collected were made by Bunte's process described above.

For dealing with a number of samples which have to be kept a considerable time before being analysed, Mr. C. J. Wilson, of University College, has devised a neat mercury collecting bottle. It consists of a tube, Fig. 8, of any desired capacity, but not larger than is absolutely necessary, closed at both ends, with the exception of the two small tubes, and which are provided with india rubber caps with bits of glass rod to serve as stoppers. In taking a sample the sampler is completely filled with mercury, and one of the branch tubes is connected with the pipe leading to the flue (previously aspirated). The whole apparatus is then inclined so that the mercury runs at the other branch, its place being taken by some gas from the flue, only enough mercury being left to seal the ends of the two branches; the first tube is disconnected from the pipe, the branches filled up with mercury, and the caps and stoppers put on. A box to carry a number of these in their proper position can easily be arranged, whilst the quantity of mercury required is only that necessary to quite fill one of the samplers, and as much more as is required to make the necessary seals. The introduction of a tee piece somewhere in the collecting tube, before the sampler, allows of any air being exhausted by a hand pump or otherwise.

[To be concluded.]

* "Trials of a Warm Blast Steam Boiler," by J. C. Hoadley.

* Engine, Boiler, and Employers' Liability Corporation. Chief Engineer's report for 1887.

ITEMS OF INTEREST FROM VARIOUS LOCALITIES.

AT a business meeting of the Engineers' Club, of Philadelphia, the Secretary read a letter from Mr. E. L. Corthell, an active member of the Club, inclosing a copy of an address made by him before the Western Society of Engineers, with respect to their participating in the erection of a monument to the late James B. Eads. It is proposed that the monument be erected in St. Louis, and the estimated cost is put at from $15,000 to $18,000. The letter ended in the request that all those who desire to join the Monument Association should send their names through the Secretary of the Engineers' Club (Mr. Howard Murphy) to Col. E. D. Meier, C.E., Bank of Commerce Building, St. Louis, Mo.

AT an auction sale of shares (towards the close of last month) in the Brookline (Mass.) Gas Light Company, the price made was 128¾, an advance of 3¾ points over the last recorded actual sale. This tells the story whether or not gas stock in well managed gas companies still holds the confidence of conservative investors.

MESSRS. J.W. DOUGLASS, J.W. Ross and B. M. Robert, Commissioners for the District of Columbia, are out with the following announcement: "In compliance with the provisions of the Act of Congress making appropriations to provide for the expenses of the Government of the District of Columbia for the fiscal year ending June 30, 1891, approved August 6, 1890, the Commissioners of the District of Columbia hereby invite proposals for supplying gas and electric lights at reduced rates for municipal lighting in the District of Columbia upon annual, 5-year and 10-year contracts, and upon any system. The Act provides as follows: 'That the Commissioners of the District of Columbia shall investigate, ascertain and report to the second session of the Fifty-first Congress what deduction may be made for gas and electric lighting, both for annual, 5-year and for 10 year contracts, and that they be authorized to invite proposals for supplying said light at reduced rates, and in this they are not limited to any one system.' Full information will be furnished upon application at this office. The application should state whether information is desired concerning gas lighting, electric lighting, or both. As these proposals will be submitted to Congress, it is desirable that they should be received at this office not later than November 20, 1890, but proposals will be received at any time before March 1, 1891."

WE understand that the Nebraska City (Neb.) City Council has assented to the petition of the Nebraska City Gas Company for an extension of its franchise. At the same time the Council agreed to enter into a contract with the Company for the public street lighting, based on the following terms: Street lamps carrying 6-foot burners, on moontable schedule, to be paid for at the rate of $23 per annum each; $30 per lamp to be charged if all-night lighting is to rule. Lamps fitted with 5-foot burners are to be paid for at the rate of $20 on the short table and $30 on the all-night plan.

THE Nationalists of Massachusetts are urging that all the members of the last Legislature, who were opposed to the bill empowering cities and towns of that State to operate gas and electric lighting plants on municipal account, should be defeated at all hazards. They also urge that Governor Brackett should share a similar fate, in that he is supposed to have been lukewarm in assisting the cranks who would, if they could, strangle private enterprise by committing private economies to the care and custody of the State. In any event, the following "appeal" is now being spread broadcast in Massachusetts—it is signed by men, too, who are of undoubted prominence in the State:

"The efforts made before the Legislature last winter to secure the passage of a law permitting towns and cities to control and operate gas and electric light plants, though not crowned with complete success, were far from being a failure, as appears from the fact that the bill passed the House by a large majority. The provisions of the bill were declared constitutional by a unanimous opinion of the Justices of the Supreme Judicial Court. The Senate then defeated the bill by referring it to the next Legislature. That the public consider the enlarging of the functions of municipalities a subject of great and vital importance is shown by the fact that 15,000 people petitioned the Legislature of 1890 in favor of such a law. The deep impression made by this agitation is reflected in the following plank in the Democratic platform of this year: 'We believe the time has come when cities and towns should be invested with larger powers of home rule in matters of taxation and municipal administration; and we commend to the consideration of the coming Legislature the expediency of authorizing cities and towns, under proper conditions, to exercise those wider functions which municipalities in other States and countries have found desirable as well as the expediency of authorizing towns and cities to exact compensation from corporations enjoying public franchises where this can be done without injustice to vested rights or detriment to the public interest.' We feel it our duty to call attention to the utterances of one of the leading political parties of the State upon a subject of such vital consequence to every citizen. These issues are upon us, and their settlement in accordance with the inherent rights of the people as against the greed of private monopolies far transcends in importance that of any other issue now being agitated by the various parties in the State. The power of these monopolies is shown by the recent legalizing of the lobby—a body that exhists principally for the purpose of assisting corporations to defeat measures intended to benefit the people. The time has come when the people must control the monopolies or the monopolies will rule the people. There is no middle ground. Which alternative we shall choose is the question we are called upon to answer at the coming election."

ALL of which makes very pretty reading, even if somewhat stilted, not to say irrational. The Nationalists seem not to be willing to stop short of anything, in the line of verbosity, to "advance their cause," even if in that verbosity they are brought to the necessity of claiming that the mass of their citizens are infants and that their capitalists are cozeners.

THE latest from Louisville, in respect to the "called meeting" in that city of the bondholders of the Kentucky Rock Gas Company, comes to us in this shape. About all the bonds were represented, and President Lindenberger, having called the meeting to order, explained the present standing of the Company—a statement that was sufficiently doleful to cause the bondholders to reflect dubiously over the prospects of the on-coming days. A resolution was adopted appointing a committee, composed of Messrs. J. H. Lindenberger and P. Meguiar and Col. R. T. Durett, with full power to control the bonds held by the owners, and to purchase, if deemed advisable, the property of the Kentucky Rock Gas Company, if offered for sale by reason of a foreclosure; to organize a now company, and transfer to such company the bonds of the present Company, to be paid for in the bonds represented, allowing the stockholders of the present Company to participate in the organization of the new company by taking, pro rata, to the amount of $200,000 in bonds. Having thus finished the business in hand, which certainly in its consummation offers no very glittering bait to the shareholders, the meeting adjourned.

"ABOUT a fortnight ago the Hartford (Conn.) Medical Society held a debate on water gas, and a most interesting session was the result. Mr. James L. Howard, President of the Hartford City Gas Light Company, Mr. Thomas Evans, Secretary of the Company, and Mr. Geo. H. Seyms attended, at the Society's invitation. Dr. Downs, Assist. Physician at the 'Retreat,' spoke briefly of the respective component parts of water and coal gas, and said that water gas was objectionable on account of the presence in it of an excessive amount of carbonic oxide. He did not think that marsh gas was to be held as contributing greatly as an objectionable element in either coal or water gas. The odor of water gas was decidedly characteristic, and could be easily detected. The loss of consciousness caused by inhaling water gas is more profound than that caused by coal gas, and it is less easily recovered from. In summing up he said it seemed to be the general opinion that water gas was a better illuminating agent *per se* than coal gas. In the subsequent discussion, Prof. Chandler was quoted as holding that water gas was not dangerous, while on the other hand, Prof. Sedgwick, of Boston, was referred to as holding a contrary opinion. President Howard, in concluding the argument, remarked that his Company, in installing an auxiliary water gas plant at its works, should not be held as thereby desiring to kill off its customers. The Company did not propose to use apparatus similar to that in vogue at Middletown, Conn., but had adopted a new and improved system. The decision had only been arrived at after a careful inspection of the new water gas plants of Boston, Providence, Lawrence and Philadelphia. In Hartford they intended to continue the manufacture of coal gas, believing that it has a better body and greater diffusive power, but will add to it 25 per cent. by volume of water gas, thus practically using the latter as an enricher. Mr. Howard reasoned that as coal gas contained 8 per cent. of carbonic oxide and water gas 26 per cent., the mixture they proposed to supply would in reality not come within the extra danger line, respecting the carbonic oxide content. In closing, Mr. Howard said that three-fifths of the gas supplied in New York was water gas, pure and simple. Prior to adjournment, the Society passed a vote of thanks to Mr. Howard and the other gentlemen who had taken part in the debate.—OBSERVER."

THAT celebrated champion of the "rights of the people" whose mansions snuggle in the mud that lines the banks—and a trifle further, too—of the fetid stream known to Brooklynites as the Gowanus canal (Ald. McGarry, of "de Tenth Ward"), recently called on Mayor Chapin, in company with several of his constituents, to complain of the odors that emanate from the Citizens Gas Company, the works of which are located on Fifth street, between Smith and Hoyt streets. The Alderman and "his people" represented that the works were an intolerable nuisance, and insisted that the fumes emanating from the plant were detrimental to health and sleep. Poor people, these; suffering from such ills for such a length of time; and so uncomplainingly! The fact is that the works are conducted in as orderly and cleanly a manner as is possible, and anyone acquainted with the Company's clever and capable engineer—Mr. Thos. E. Byrne—will agree with us in that assertion. The real truth, we suppose, is that "de Alderman," now that it is close to election times—McGarry holds over, more's the pity, in common with others of the Board—although it is not an Aldermanic year in Brooklyn, desires to show to the Gowanus canal constituency that he is "agin the corporations" every time, no matter whether or not the corporations are doing everything that could be consisently asked of them.

THE officers of the South Dakota Gas Light and Heating Company, the proprietors of which are erecting the gas works at Huron, as noted in our last issue, are: President, M. P. Ohlman, of Yankton; Vice-President, J. B. Cloudas, of Sioux Falls; Secretary and Treasurer, Jacob Schaetzel, of Sioux Falls. Mr. Schaetzel is overseeing the work of construction.

THE Mount Tabor (Oregon) Water and Light Company has been incorporated. The Directors are: Messrs. J. H. Smith, S. L. N. Gilman, J. C. Moreland, J. M. Arthur, and Jas. D. Hart.

THE Warsaw (N. Y.) Board of Trustees have granted an electric lighting franchise to George C. Otis and Elmer E. Rowe.

THE Kingston (Can.) Gas and Electric Light Companies have joined forces. The Electric Company's holdings were accepted at a valuation of $32,000, and payment for same was made at par in new stock of the Gas Company.

THE Ogden (Utah) Gas Company has been reorganized and incorporated under the name of the Utah Gas Company. Its capital stock is $200,000, and the officers are: President, S. M. Preshaw; Vice-President, P. A. H. Franklin; Secretary, R. W. Cross; Assistant Secretary, E. D. Goodrich; Treasurer, C. R. Houk. The Company, it is hoped, will, under the new management, speedily redeem itself.

AT a recent meeting of the Chicago Council Committee on Gas, Oil and Electric Lights, a very stormy debate was enjoyed by those who happened to be present. The agitation was traceable to the bringing up of the proposed ordinance granting a franchise to the Citizens Fuel and Gas Light Company. The ordinance grants the Company the right to lay the necessary pipes, etc., to supply gas for lighting purposes, at the rate of $1 per 1,000, and fuel gas at 50 cents. Ald. Powers said he would vouch for the ordinance, in that it was backed by business men who had built and controlled gas companies in other cities. The Company was ready to pay a yearly rental of $30,000, and would agree to give the city the option to purchase the plant at the expiration of a term of 20 years. Ald. Lyke said Chicago had too many gas companies now, and substantially they sold gas at $1 per 1,000. Further, other gas ordinances before the Council bound their projectors to sell gas at 70 cents per 1,000. Ald. Meyer permitted his temper to get the better of him, and in a rambling sort of speech asserted that a certain ring in the Board of Aldermen were in favor of extending the electric light system of the city only to those districts where it would not interfere with the Chicago Gas Company—Meyer always loses his temper when his mind reverts to the old Chicago Gas Company. After more of the wordy warfare had been indulged in it was decided to refer the ordinance to the Law Department, with instructions to draft a suitable ordinance.

THE mains of the St. Albans (Vt.) Gas Company have been extended through England and Rugg streets.

RECENTLY, in the Supreme Court, Pittsburgh, Pa., argument was heard in the case of the Saltsburg Gas Company against the borough of Saltsburg, appealed by the defendant from the Court of Common Pleas, of Indiana county. A suit in equity was brought by the Company, which is a purveyor of natural gas, to restrain the borough from using gas in open street lamps. In return for rights through the borough the Company agreed to furnish gas for the street lamps, and subsequently a contract was made for furnishing gas for an additional number of open lights. The Company—the contract was presumably terminable on stated notice from either party—afterwards notified the authorities that it would shut off the gas supply from the open lights, and in due time sent workmen to disconnect the lamps. The men were arrested for trespass, whereupon the Company brought suit, the lower court sustaining the plaintiff, as undoubtedly will be the result in the higher tribunal.

WE understand that the plant and franchises of the Medina (N. Y.) Gas Company have gone into new hands.

THE Smith avenue new plant of the Troy (N. Y.) Gas Company is virtually completed. The Company's real estate on North Fourth street will likely be sold.

A PECULIAR damage suit is reported from Saratoga, N. Y., which is in the nature of an action, brought by Mrs. Lelia Seabury, in the Supreme Court, to recover $2,000, for personal injuries, from Supt. George L. Humphreys, of the Consumers Gas and Electric Light Company. The injuries are alleged to have been received by her when she attempted to prevent the Superintendent and his men from erecting an electric light pole in front of a house owned by her grandfather, Mr. James Leach.

THE Whitehall (N. Y.) Gas Company's electric lighting annex is in working order.

THE case entitled the St. Paul Gas Light Company vs. The Bank of Minnesota was tried before Justice Otis and a jury some days ago. Plaintiff deposed that on January 10, 1890, it had $1,336.07 on deposit in defendant's bank, payable on demand, but when a check for that amount was presented to the cashier of the bank, payment was refused. It appears from the evidence that Mr. P. H. Vane Lucas, an alleged Eastern agent for the Gas Company, drew a check for the amount of $1,336.07, payable to the Peerless Refining Company, of New York. The check passed into the hands of the Park National Bank, of Chicago, which in turn presented it to the St. Paul people for payment. The Gas Company asserted that Lucas had no authority to draw a check in its name, hence the Bank of Minnesota was derelict in honoring such a demand. The jury agreed with plaintiff.

THE proprietors of the Cohoes (N. Y.) Gas and Electric Light Company have arranged to add a Westinghouse incandescent dynamo to their electric equipment. The Company will furnish incandescent electric lights (16 candle power) at the rate of 1 cent per meter hour.

THE Galena (Ills.) gas works have been sold to Eastern capitalists.

THE authorities of Cleveland, O., have determined to appoint an official inspector of gas and gas meters.

THE schemers who some time ago smuggled through the Common Council of Grand Rapids, Mich., an ordinance giving life to an ill-smelling opposition Company, to be known as the Grand Rapids Fuel Gas and Incandescent Lighting Company, are now plainly showing their hands, and the authorities are blindly (?) helping them along. It would seem so at any rate, since the Council, about a fortnight ago, assented to a petition permitting the Company to have (until December 1, 1891) the right to put in its mains. When this thing was originally proposed in Council we characterized it as a "strike;" and beyond a doub we were right.

EASTERN despatches are to the following effect: "Willimantic (Conn.) is fortunate in witnessing the formation of a new Gas Company, to be known as the Citizens Gas Company, with a capital stock of $50,000, divided equally between General Eugene L. Boss, Julius Pinney, O. H. K. Risley, Luther Hill, of Spencer, Mass., and Edward Evans, of Lynn, Mass., who have organized as follows: President, General Eugene L. Boss; Secretary, Julius Pinney; Treasurer, O. H. K. Risley. Negotiations are now nearly completed to purchase the present plant of the Willimantic Gas Company, formed in 1857 with a capital of $60,000. Work will be commenced and all the plans and specifications pushed forward as fast as possible. The names of the present stockholders are such as to guarantee the future growth and prosperity of the much needed new industry in Willimantic."

ATTENTION is called to advertisement on page 626, inserted by the Pittsburgh (Pa.) Gas Company at the instance of its Engineer, Mr. Jno. H. McElroy, soliciting tenders for the removal of the tar produced on the works, the contract to run for a period of 5 years from January 1st

next. The competition is to close at noon of December 13th, and tenders are to be made on the basis of the net ton of 2,000 pounds of coal carbonized. There ought to be brisk competition for this contract, and we will await with no little interest the result of the contest. In certain sections of this country—notably in Washington, the Dakotas and Nebraska—coal tar is in brisk demand, and in some local instances 500 barrel lots have been readily disposed of at $5 to $5.50. We congratulate the Pittsburgh Company on its business-like plan of advertising its "wants" of this sort in the JOURNAL. If the distillers of gas tar can be readily reached through any advertising medium, such result may most safely be attained in an appeal through our columns, for every distiller of prominence subscribes for the JOURNAL; and pays for it, too.

THAT beautiful suburban district of Atlanta, Ga., known as Inman Park, will be lighted by gas early this month, the Atlanta Gas Company having carried its mains into the district.

A CORRESPONDENT writes: "The Framingham (Mass.) Gas, Fuel and Power Company is one of the busiest concerns in the village just now, and considering the stormy or wet weather that has prevailed during the present month, the men employed by the Company have accomplished a great deal. At the present time much of the progress being made is in the line of excavating trenches and laying pipe in the streets. Something over four miles of pipe have been put down, principally in Union avenue, Concord and Irving streets. Some 100 service pipes have already been laid in the different streets, and other applications are in hand. The work of completing the plant is fast going forward, and the machinery is now nearly all in. The buildings are about completed, and the purifying house is ready for slating. The iron roofing necessary to the completion of the plant will soon be here, and the exhausters and engines have arrived. The people are anxiously awaiting the turning on of the gas.—R."

THE Rockland (Mass.) Electric Light Company and the Rockland and Abington Electric Light and Power Company have settled their differences by an agreement to consolidate.

THE projectors of the Co-operative Electric Lighting Company, which has been formed in opposition to the New Bedford (Mass.) Gas and Electric Light Company, have chosen the following officers: President, J. M. Lawton, Jr.; Vice-President, N. P. Hayes; Secretary, A. G. Alley; Treasurer, F. R. Hadley; Executive Committee, H. C. Hathaway, Dr. C. R. Hunt, H. B. Coffin, William Sanders and W. R. West. The Company is capitalized in $50,000.

THE incandescent electric lighting system at Elizabeth, N. J., can be fairly written down as being a mere travesty on a lighting supply. The Company will either have to mend the conditions or go to the wall.

MR. FRED. BREDEL proposes to spend the winter season in Texas, provided the gunning is good.

Some Effects of the Increased Water Supply of this City.

Mr. A. H. Napier, in a recent number of *Architecture*, says that the increased water pressure, which the recent filling of the distributing reservoirs has given to many parts of the city, and which we presume will be made permanent at the completion of the final repairs to the new aqueduct, has seriously affected many of the present systems of house supply. Until the water was turned into the new conduit, but a short time ago, probably the majority of buildings were necessarily supplied, in part, from some form of house tank, this in turn being filled by a pump, except in the few cases where the water rose to the required height at night. With this simple system both overflow and tell-tale were often omitted, or, if either was supplied, it was of small size and emptied, perhaps, over the cellar floor, or some small fixture, such as sink or closet cistern, poorly adapted to receiving a large or sudden rush of water. As a result, the water, under the increased pressure, rises through the pump pipe or down supply, overflowing the tank, flooding the cellar or house, or at best running to waste through sink or other fixture. The simple remedy is, of course, to put a ball-cock on the pump or supply pipe and a check valve on the down supply from tank. Where this overflow and waste is inconvenient or dangerous, it will doubtless be remedied at once; indeed, the plumbers have been busy making the needed repairs in all parts of the city during the last few months. But where the means for carrying away the overflowing water were already adequate and at the same time inconspicuous, as into the rain water gutter from a roof tank, or over a cellar sink from one within the building, it is to be feared that the waste of water will continue unchecked.

The increased waste anticipated by the authorities, due to the effect of the greater pressure on defective piping, valves, cocks, etc., would be but a small matter compared with that due to the conditions described. Should this be permitted to continue it would add largely to our already unreasonable waste of water in this city, and seriously affect the new supply. It therefore becomes of personal interest to each householder and tenant to use every effort to prevent any unnecessary waste either upon his own or his neighbor's premises.

But beside the primitive system of house supply described, with the very evident methods of waste, there are other arrangements of piping, as found in the majority of dwellings, with a double system, which also lead to waste and annoyance under the increased pressure, and which present some new problems in the construction of supply systems in new buildings. In the first place, having, in an old dwelling, prevented another flood by the use of ball cocks and check valves, it will be well to examine the pump line to tank, as this was often made of light-weight pipe, which it would be unwise to retain under a constant and increased pressure. Again, the overflow and tell-tale should be looked after, provided if lacking, and made of adequate size, and discharged over some fixture where a waste will do no damage, since the ball cock and check may at any time leak or stick, and temporarily fail to act.

In the better class of work, "relief" or "expansion" pipes were provided for both the inside and outside boilers of a double system and carried over the top of the tank, answering the purpose of both vacuum and safety valves much more satisfactorily than any mechanical device. Under the increased head, however, the water rises through these pipes, often when they are carried as high as possible, and not only running to waste, but rapidly cooling off the boilers and perhaps preventing completely the heating of the water. This seems to have happened frequently of late, much to the wonder and annoyance of the householder, who has occasionally been induced to purchase a new range or water-back, but without the improvement guaranteed by the furnace maker. Where the water rises intermittently, or but little above the tank level, and during the night only, the placing of ball cocks on these relief pipes will be fairly satisfactory, since they will be closed and their protective functions impaired only during the hours when least needed. In the majority of cases, however, the present head of water is too great for the success of this expedient, and there seems little to do but close or abandon such pipes entirely. In their place the ordinary safety and vacuum valves may, of course, be placed near the boiler head and a drip pipe carried to the kitchen sink, but it is the common experience that such valves either leak, or if tight and unused for a long period, become fixed and fail to respond to a sudden demand. Other expedients have been used for attaining, at least in part, the same results. For the protection of the outside boiler against steam pressure the usual check on the street supply should be omitted, as then the heated water may, if necessary, expand back into the main itself. If it is probable that a pump may be used at some future time, the suggestion has been made to retain this check and simply file a small opening in its valve. This of course, does not provide against syphonage, should the street supply temporarily decrease or fail, but it is perhaps fair to assume that this would generally be prevented by the small hole in the boiler tube, aided by some fixture cocks which were not absolutely air tight.

For the inside boiler, if the ordinary valves be not used, the expansion pipe over the tank may be provided with some form of valve which will close with the rising water, but open to a demand for air. A rather ingenious form of such air valve has lately been used for this purpose containing a small, light cup, which floats easily, seating the valve, and falls again with the pressure. Here, again, a vacuum is provided against, but a steam pressure not prevented. Fortunately the latter is less apt to occur in the ordinary inside boiler, because of the indirect method of heating the water by means of that in the outside shell. In this case also it has been suggested that probably any great pressure would find an outlet through defective faucets, etc., or even force open for an instant some ball valve, as may readily be done by an ordinary pump.

From these facts and considerations it therefore behooves the architect and plumber to adapt the supply systems in new buildings to the changed conditions that the practical results may be satisfactory, and if possible the same safety secured as by the older methods. While of paramount importance is the adaptation of the old system throughout the city to the new demands to prevent an increased waste of water, and so secure to all alike the full benefits of the new supply, which has been obtained at so great expenditure of time and money.

THE AMERICAN GAS LIGHT JOURNAL

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PROPRIETORS.

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AND GENERAL SCIENCE

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AGENTS.
NEW YORK.—AMERICAN NEWS CO., 39 and 41 Chambers Street.
Germany.—B. WESTERMANN & CO., of New York.

MONDAY, NOVEMBER 3, 1890.

The Market for Gas Securities.

During the week no marked changes were made in quotations for city gas shares, although Consolidated early in the week did sell under the par notch. Transactions on the under side, however, were light in volume. To day (Friday) Consolidated opened at 100⅛ to 100¼, and there was some fair inquiry for round lots. Brooklyn shares are strong and higher, in respect of all classes. Nassau is now at its highest notch (135 bid), and it looks as if it would not stop short of 140. Rumor has it that Brooklyn will soon be called on to pass an ordinance for an opposition Company, to take in the whole city. This may be mere rumor, but we have heard it repeated with some pretense of detail, that makes the thing seem not at all improbable. Chicago gas showed great weakness early in the transactions. The lowest price made was 36½, but heavy purchases and inquiries for round lots sent the rate up to 41–41¼, where it stands to-day. Purchasers need not be afraid of these shares. They are cheap at anything under 50. Laclede is weak and lower. The market generally seems to favor holders.

Gas Stocks.

Quotations by Geo. W. Close, Broker and Dealer in Gas Stocks,

16 WALL ST., NEW YORK CITY.

NOVEMBER 3.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share.

	Capital.	Par.	Bid	Asked
Consolidated	$35,430,000	100	100	100¼
Central	500,000	50	95	100
" Scrip	220,000	—	95	100
Equitable	4,000,000	100	125	127
" Bonds	1,000,000	—	113	115
Harlem, Bonds	170,000	—	—	—
Metropolitan, Bonds	658,000	—	110	115
Mutual	3,500,000	100	120	—
" Bonds	1,500,000	—	100	102
Municipal, Bonds	750,000		—	—
Northern		50	—	—
" Bonds	150,000	—	—	100
Standard Gas Co—				
Common Stock	5,000,000	100	38*	42
Preferred	5,000,000	100	83	87
Yonkers		50	112	—
Richmond Co., S. I.	346,000	50	—	—
" Bonds	20,000	—	—	—
Gas Co's of Brooklyn.				
Brooklyn	2,000,000	25	120	123
Citizens	1,200,000	20	99½	100
" S. F. Bonds	320,000	1000	100	103
Fulton Municipal	3,000,000	100	133	135x
" Bonds	300,000		100	105
Peoples	1,000,000	10	90	93
" Bonds (7's)	368,000	—	100	—
" " (6's)	94,000	—	100	—
Metropolitan	1,000,000	100	108	111
Nassau	1,000,000	25	135	—
" Ctfs	700,000	1000	100	102
Williamsburgh	1,000,000	50	131	133
" Bonds	1,000,000	—	108	112
Out of Town Gas Companies.				
Boston United Gas Co.—				
1st Series S.F. Trust	7,000,000	1000	93	93½
2d " " "	3,000,000	1000	71	72
Bay State Gas Co.—				
Stock	5,000,000	50	70	74
Income Bonds	2,000,000	1000	95½	—
Buffalo Mutual, N. Y.	750,000	100	90	95
" Bonds	200,000	1000	95	100
Citizens, Newark	1,000,000	50	155	160
" " Bonds	45,000	—	—	—
Chicago Gas Company	25,000,000	100	41	41¼
Chicago Gas Light & Coke Co.—				
G't'd Gold Bonds	7,650,000	100	—	92½
Equitable Gas & Fuel Co., Chicago, Bonds	2,000,000	1000	—	98
People's Gas and Coke Co., Chicago—				
1st Mortgage	2,100,000	1000	—	100
2d "	2,500,000	1000	94	98½
Consumers Gas Light Co., Jersey City	2,000,000	100	—	30
Bonds	600,000	1000	80	—
Cincinnati G. & C. Co.	6,000,000	100	201	203
Consumers Toronto	1,000,000	50	190	200
Central, S. F., Cal			80	90
Capital, Sacramento, Cal			58	
Consolidated, Balt.	11,000,000	100	50	51
" Bonds	6,400,000		107	107½
Citizens Gas Lt. Co., Rochester, N. Y.	500,000	—	85	110
Bonds	250,000		—	—

Position Wanted
As Superintendent of Gas Works.
Has had a large experience in the manufacture and distribution of gas and construction and extension of gas plants. A1 references. Address
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Coal Tar For Sale.
PROPOSALS for the entire make of Tar in the works of the **Pittsburgh Gas Company,** for five (5) years from the 1st day of January next, will be received at their Office, No. 77 Sixth Avenue, Pittsburgh, Pa., until the 13th day of December next, at noon.
Bids to be by the net ton (of 2,000 pounds) of coal carbonized. Tar to be delivered in tar tank at works. Right to use sufficient tar for Company's own purposes, and to reject any or all bids, reserved.
804-6 JOHN H. McELROY, Engineer.

Dissolution of Partnership.
HENRY J. DAVISON & COMPANY.
Notice is hereby given to all interested parties that the co-partnership existing between Henry J. Davison and Frank F. Jones, under the firm name of Henry J. Davison & Company, was dissolved on the 22d day of July, 1890, by the death of the said Davison.
The affairs of the firm will be liquidated by the surviving partner, Frank F. Jones, at his Office, No. 2 Wall Street, N. Y. City, where all claims must be presented on or before Dec. 31, 1890.

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Are now prepared to erect plants of their Oxy-Hydrocarbon Process to carburet coal gas up to any given or named candle power required for general consumption (for instance, from 20 to 25 candles), and at a cost not to exceed one and three-quarters (1¾) cents per candle power per 1,000 cubic feet increased, with a permanent and perfectly *fixed* gas, *not a vapor*—a gas that will whiten the whole output of the works.
This gas can be furnished at a cost less per 1,000 cubic feet than the coal gas may be costing the company.
Our system is such that we can furnish plants that will carburet 50,000 cubic feet in 24 hours, or three or four million feet in the same length of time. *One* of our large benches or plants would be capable of generating 100,000 cubic feet of gas in 24 hours, which would raise the candle power on 2,000,000 feet (taking as a standard coal gas at 15 candles) 3 candles on the 2,000,000 feet, enabling the works to deliver to consumers an 18 candle gas; or, enlarging our plant, the candle power may be increased as desired, at the same cost per candle power, less interest on plant.
This is much less per candle power than it can be furnished by the use of cannel coal or by vaporizing naphtha. With our process we improve the whole output in color—viz., whiten the flame with the oxygen, as well as furnishing a *thoroughly fixed* gas, and no possible danger of separation as there is with vapor.
Correspondence solicited.
J. J. NEWELL, Sec'y.
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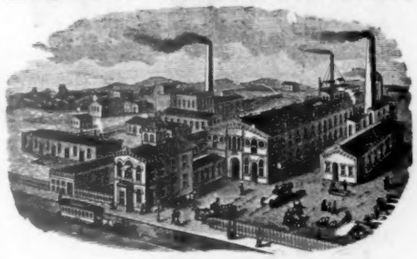
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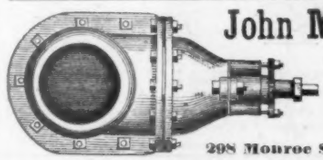
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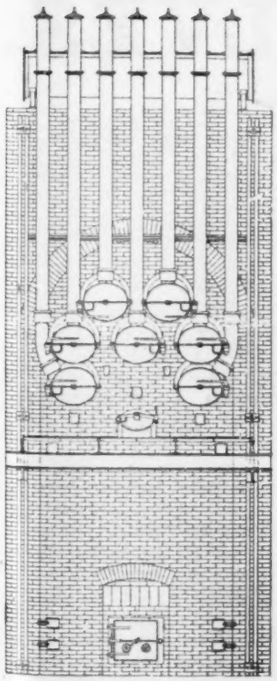
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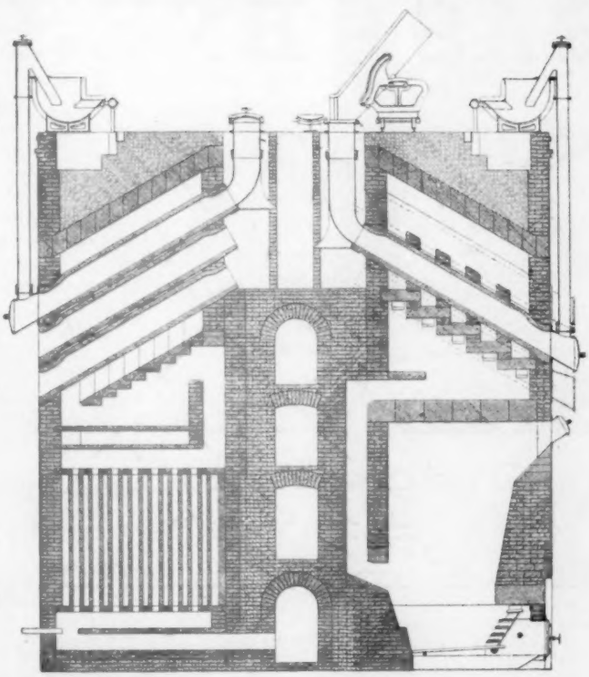
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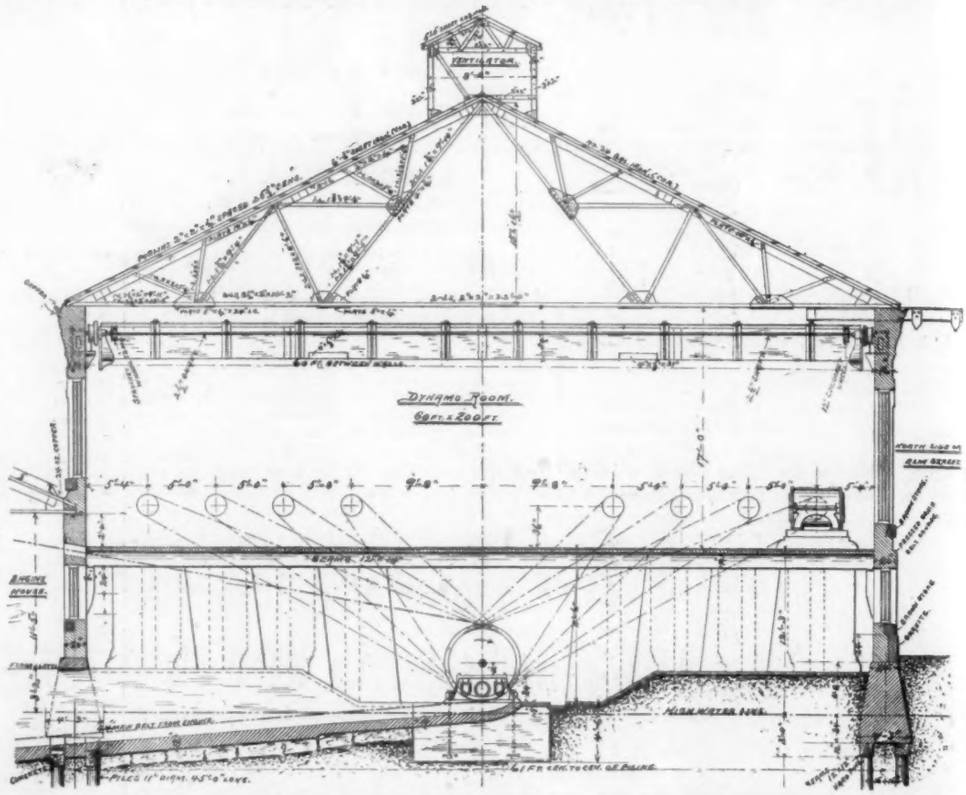

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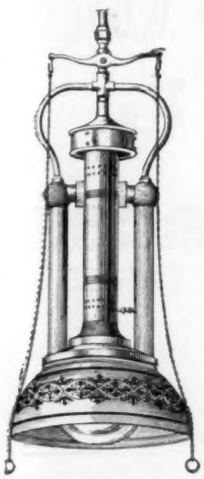
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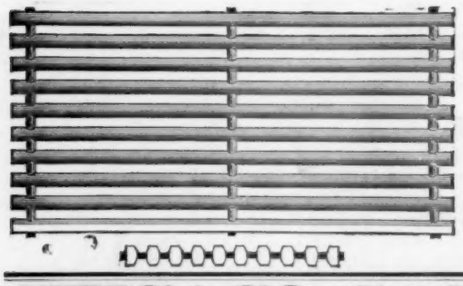

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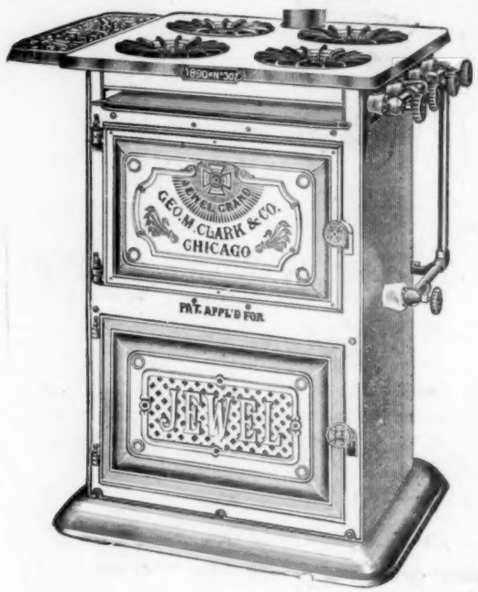

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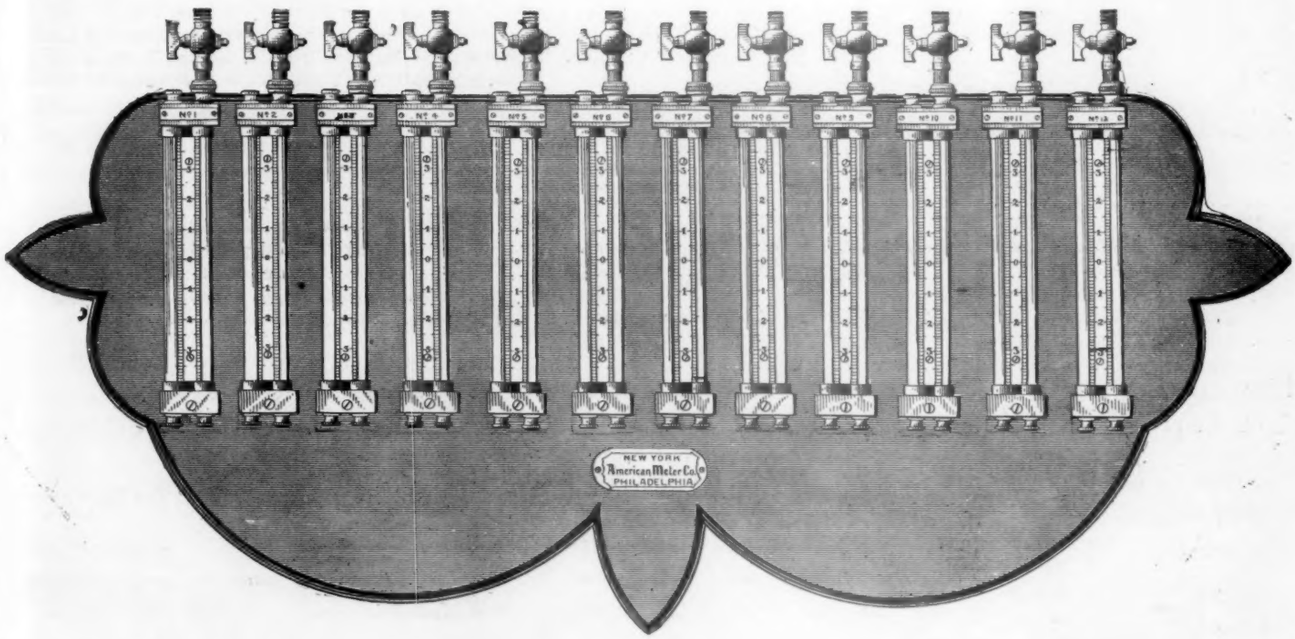

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A very general demand exists, in both large and small Gas Works, for an apparatus that will be absolutely efficient in the removal of the tar which passes the hydraulic main and condenser. Many attempts have been made to accomplish this, but, I believe, without success, until the introduction, five years ago, in England, of the C. & W Walker Patent Tar and Carbonic Acid Extractor. During these years this apparatus has been adopted by many of the most prominent Engineers, not only in England, but also on the Continent of Europe and in other parts of the world. It is only necessary to give here a partial list in order to convince any intelligent American Gas Engineer that this machine must have succeeded fully in accomplishing the desired results.

The following Engineers have personally given permission to refer to them:

G. C. Trewby, Esq., Engineer-in-Chief of the Gas Light and Coke Co., London. The manufacturing plant at Beckton is built in complete sections of 3,000,000 cubic feet capacity each. A Walker Tar Extractor has been fitted to each one of these sections. This was done after a long and thorough trial on one of its sections. The Tar Extractor has been supplied to other works of the Gas Light and Coke Co., including those of which John Methven, Engineer of the Gas Light and Coke Co. at the Nine Elms Station, is in charge. Also to G. E. Stevenson, Peterborough Gas Works; B. Green, Mitcham and Wimbledon Gas Works; W. H. Smith, Bedford Gas Works; F. Linging, Norwich Gas Works; J. T. Browning, Colchester Gas Works; S. B. Darwin, Portsmouth Gas Works; J. McCrae, Dundee Gas Works; W. J. Wells, Stamford Gas Works; J. M. Darwin, Longton Gas Works; J. Paterson, Warrington Gas Works; and J. Coulter, of the Dundalk Gas Works. All of the foregoing gas works are located in Great Britain.

Mr. Charles A. Gerdenier, Superintendent of the Bridgeport (Conn.) Gas Light Company, writes as follows, under date of Dec. 3, 1887:

"The C. & W. Walker Tar and Carbonic Acid Extractor has been in operation at these works for the past six weeks, and is an unqualified success. It removes every particle of Tar from the gas in once passing through the apparatus, and a large percentage of the Carbonic Acid. I also feel quite sure that it prevents the formation and deposit of Naphthaline, because since I started the Washer I have had no stoppages from this cause. These works have been seriously troubled with Tar for many years, and I have used several kinds of apparatus and every expedient which has come to my attention for dealing with the difficulty, but without success. The Walker apparatus occupies comparatively small space, is less expensive than other systems, and requires but little attention. I carry 2½-inch seal, and have an automatic tar delivery valve. This Tar Extractor is indispensable to gas makers."

I have taken the Agency for the United States for this apparatus, and am now prepared to make contracts to erect it on the premises of any Gas Company. It would be manufactured in the following sizes:

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No. 2,	"	"	125,000	"	"	"	4	"	"	"	"
No. 3,	"	"	250,000	"	"	"	5	"	"	"	"
No. 4,	"	"	500,000	"	"	"	6	"	"	"	"
No. 5,	"	"	750,000	"	"	"	7	"	"	"	
No. 6,	"	"	1,000,000	"	"	"	8	"	"	"	
No. 7,	"	"	1,250,000	"	"	"	9	"	"	"	"
No. 8,	"	"	1,500,000	"	"	"	10	"	"	"	"
No. 9,	"	"	2,000,000	"	"	"	12	"	"	"	"
No. 10,	"	"	3,000,000	"	"	"	15	"	"	"	"

This Tar Extractor will perform its work with about one-fourth the usual back-pressure heretofore required. It is simple in construction, and can be supplied at a very reasonable price—less than any other ever before introduced. Satisfactory results will be guaranteed in every instance.

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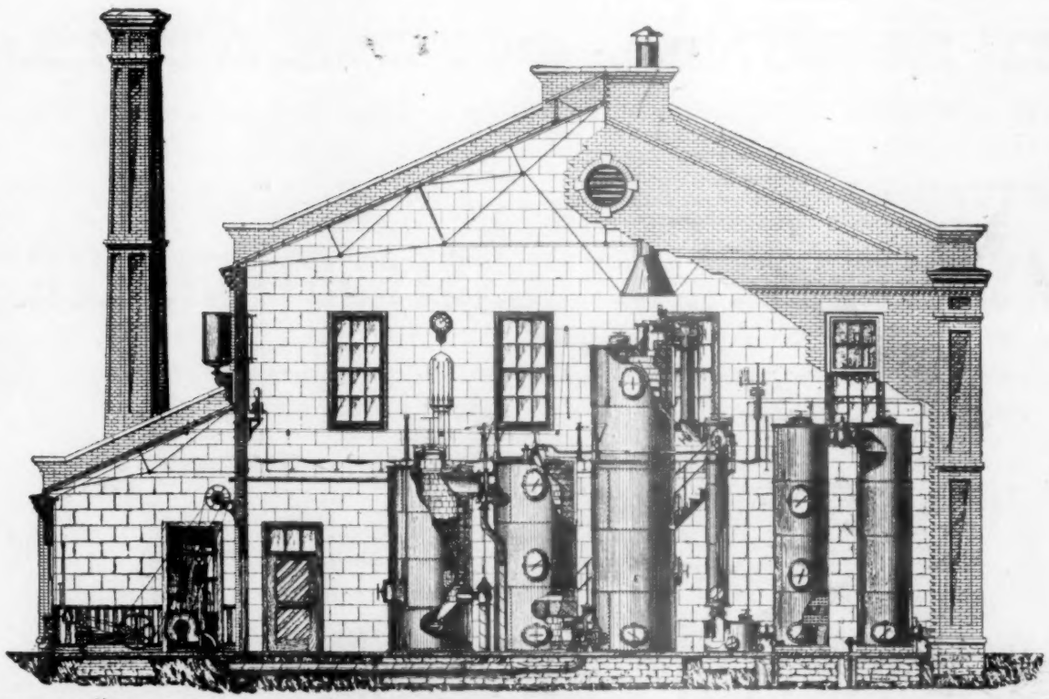

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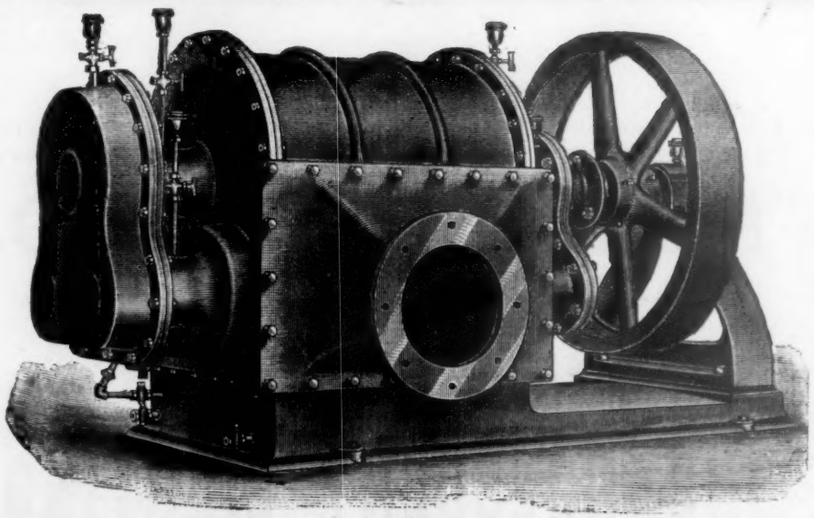

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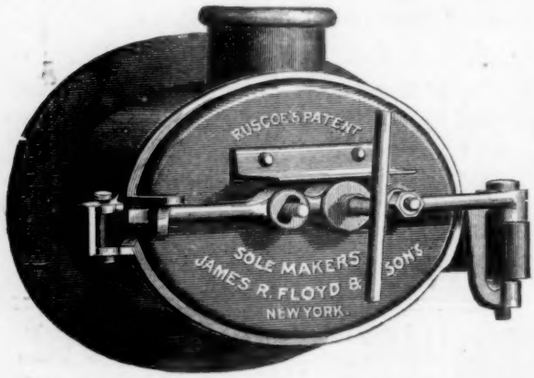

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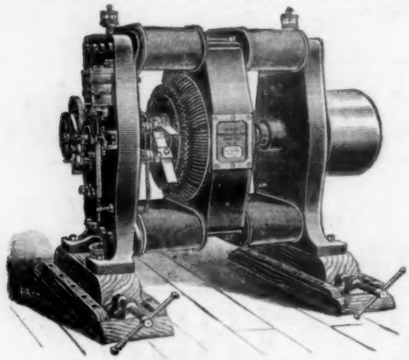

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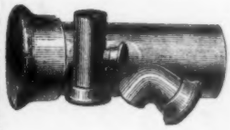

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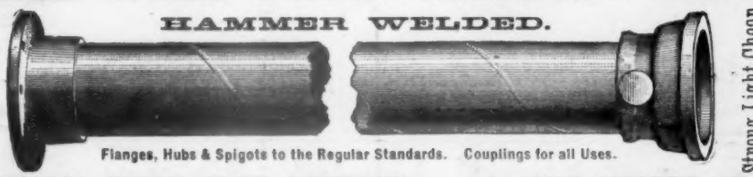

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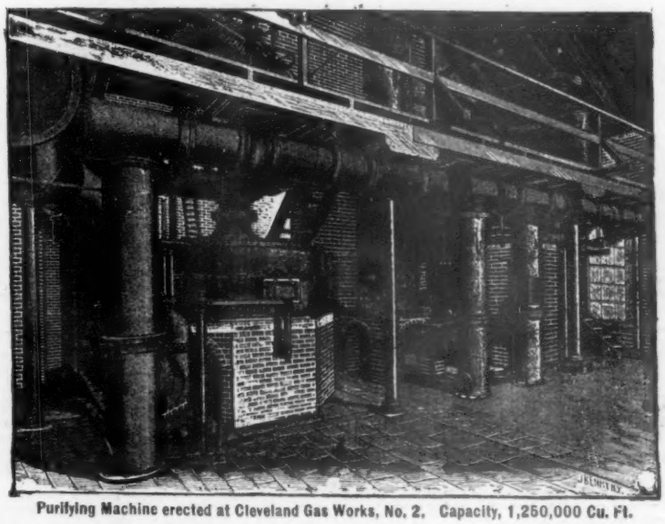

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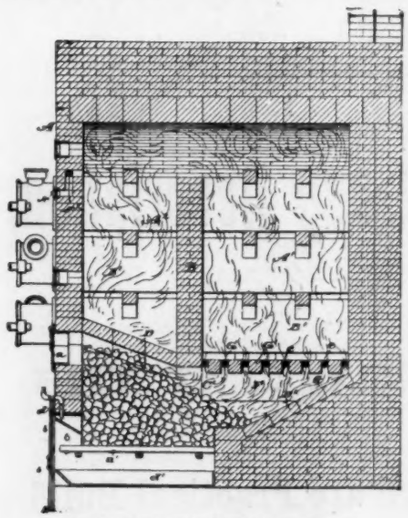

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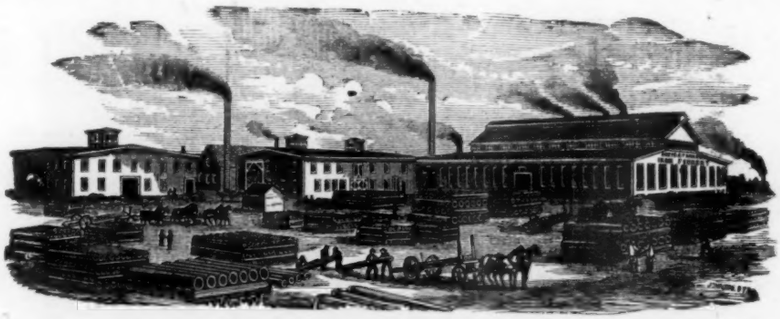

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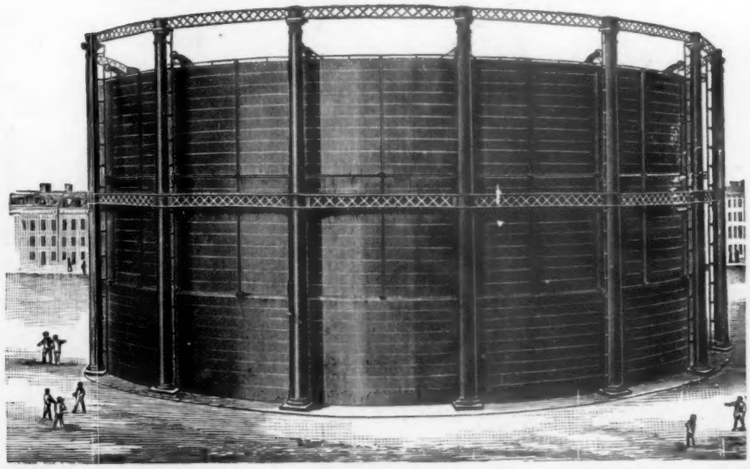

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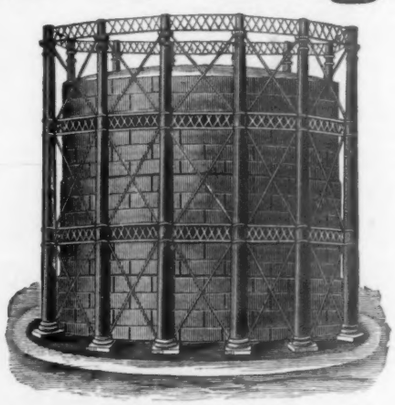

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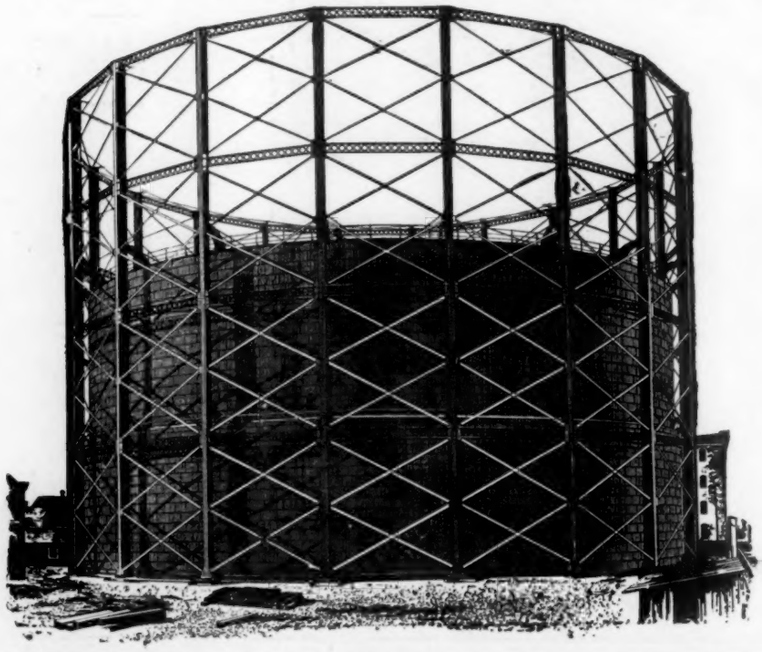

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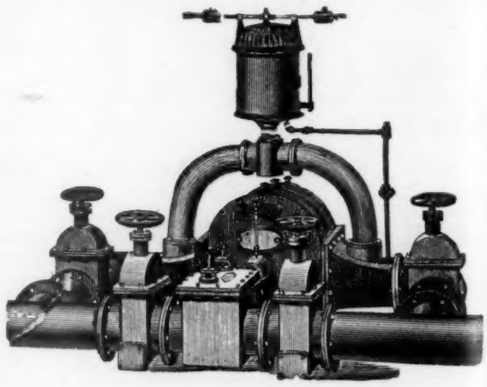

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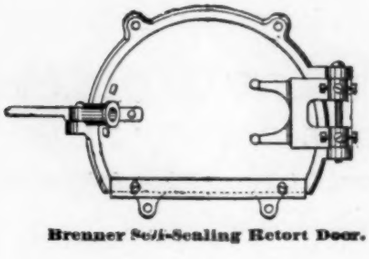

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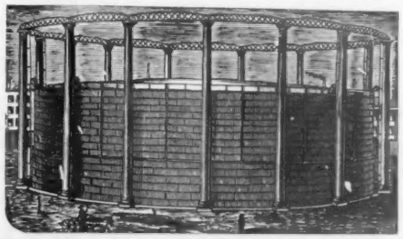
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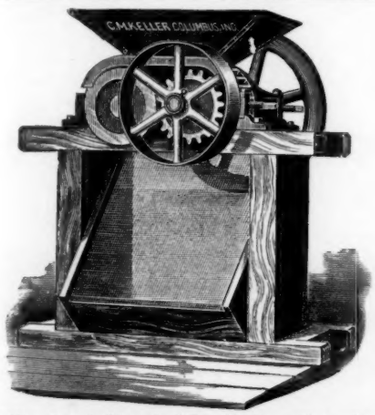

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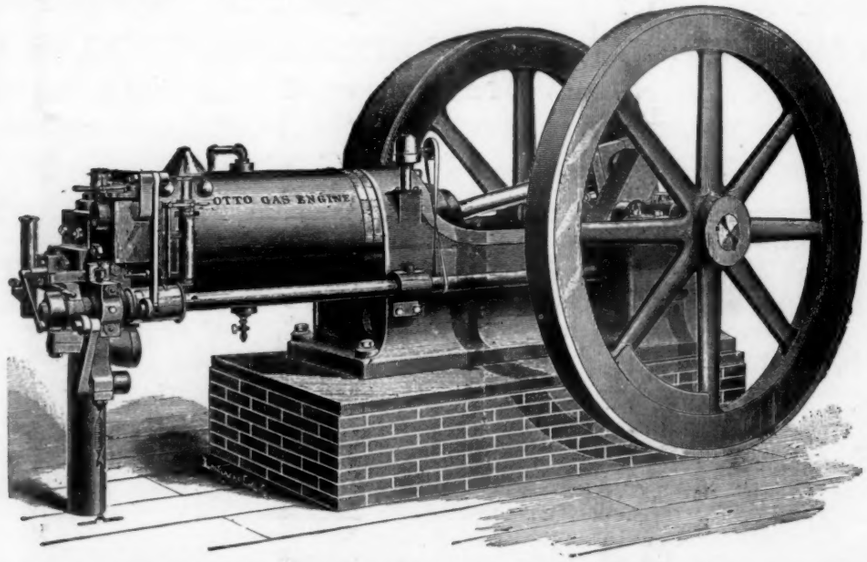

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